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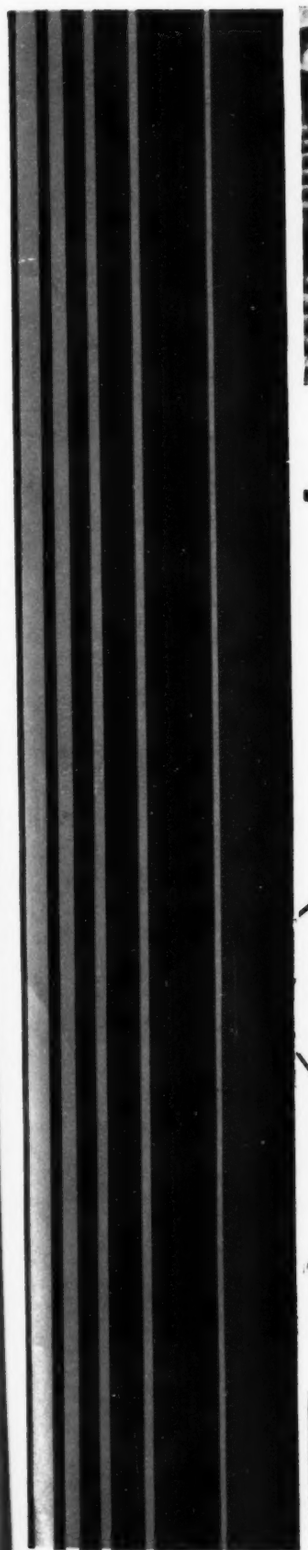

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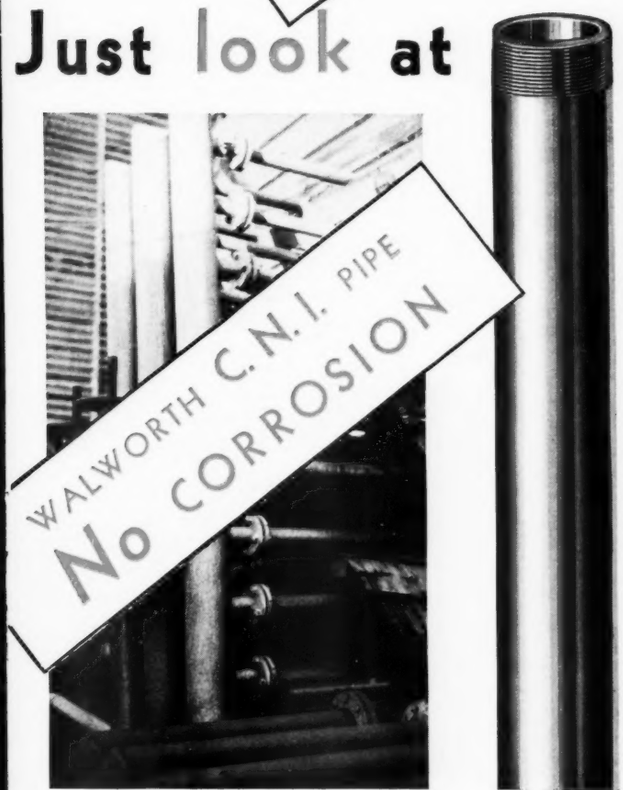

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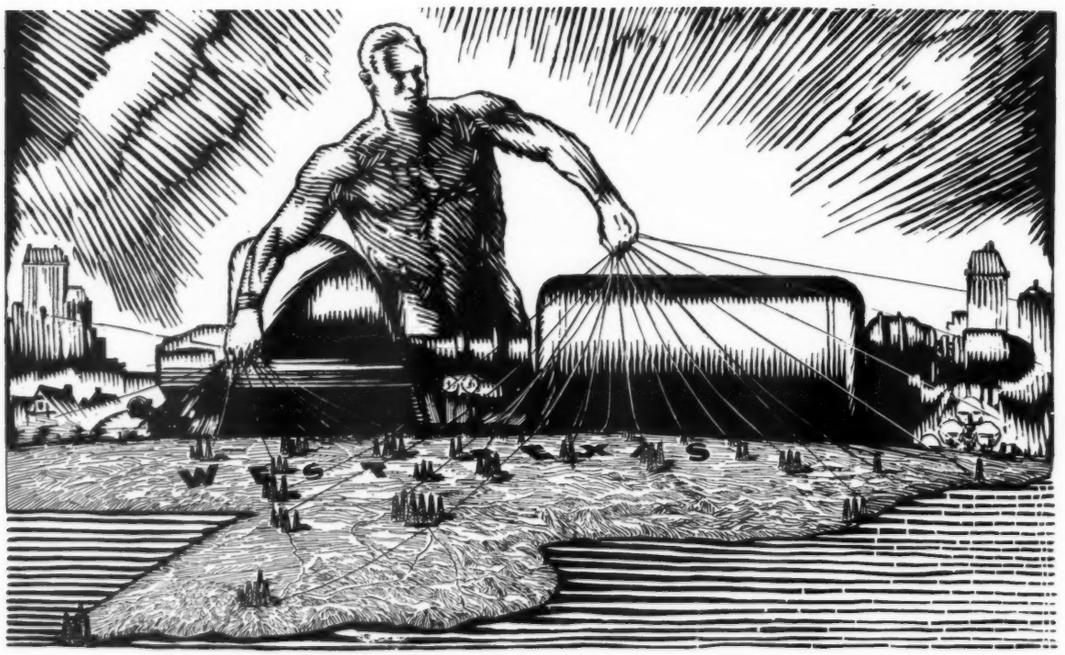

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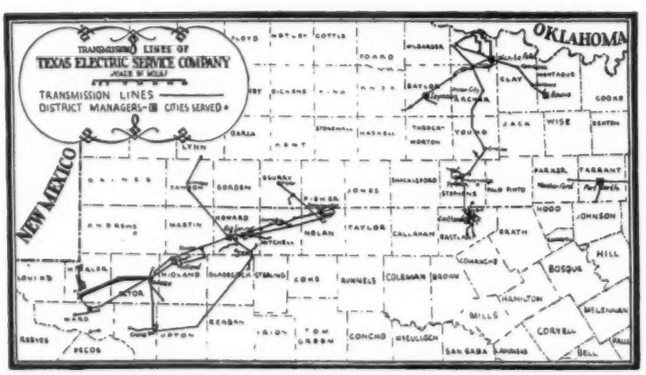

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The Oil and Gas Journal

PRODUCING REFINING ENGINEERING MARKETING

VOL. 29. NO. 44. TULSA, OKLAHOMA, MARCH 19, 1931

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Increase Is in New East Texas Fields

Highest production in 1930, week ending Feb. 22, average daily output 2,699,096 bbls. Peak of U. S. production, week ending Aug. 24, 1929, average 2,975,435 bbls.

Rusk and Gregg Counties Assume Large Proportions as Other Major Territories Decline in Output

By James McIntyre

Lowest daily average crude oil production in the United States during 1930 was for week ending Dec. 27 with average output of 2,144,074 bbls.

Production increased 22,342 bbls. per day in the past week and the Joiner and Kilgore Pools in East Central Texas were responsible for all of it, and more, as the two pools produced 74,681 bbls. per day in the past week as against 46,746 bbls. per day the previous week, an increase of 27,935 bbls. These new pools threaten to greatly increase their output in the near future. The Texas Railroad Commission will hold a meeting in Austin, Texas, on March 24 to consider the question of putting the East Texas fields on a proration basis, just as other flush pools in Texas, California and Oklahoma have been prorated in the past three years. It is generally believed that unless the Railroad Commission adds the Rusk-Gregg area to the list of prorated fields the tremendous production to be expected in the coming weeks from that area will further depress the crude market.

The increase in the production of Oklahoma over the previous week may be attributed to the taking of potential gauges in Oklahoma and the Greater Seminole area. When this work of the State Umpire and his forces is concluded Oklahoma may be expected to fall back to a level with crude oil demand.

In Kansas operators in the Ritz-Canton Field in McPherson County, which is regarded as the most important field in the State, have voluntarily agreed to curtail production under a proration agreement to be carried out under the direction of the State Umpire.

Compared with a month ago nearly every producing division shows a decline in production. West Texas has dropped off 11,102 bbls. per day, North Louisiana 4,040 bbls., Arkansas 1,485 bbls., North Central Texas 3,212 bbls., Texas Panhandle 1,232 bbls., Kansas 7,995 bbls., Gulf Coast 6,987 bbls., Southwest Texas 6,053 bbls., Rocky Mountain 3,754 bbls. and California 3,750 bbls. The other side of the picture is in East Central Texas where production has increased 61,059 bbls. due to the steady increase in the output of the Joiner and Kilgore Pools in Rusk and Gregg Counties.

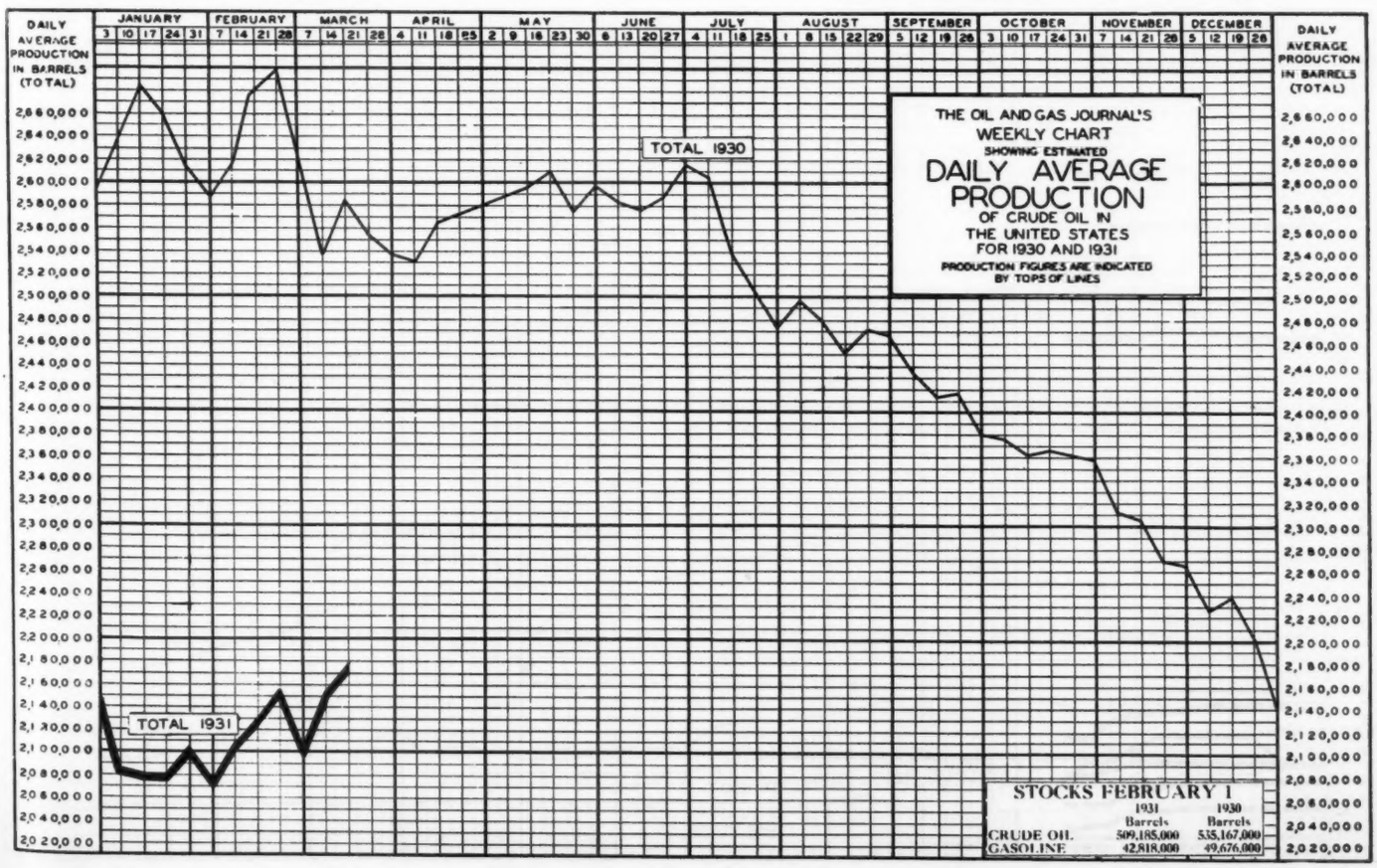
The Union Oil Co., which led the crude price cuts in California on March 10, posted a further reduction on the higher grade oils in that state effective on March 15, bringing prices to a lower level than they have been in several years.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of crude oil in the United States for week ended March 14 and a comparison with the previous week follows:

	Mar. 14	Mar. 7
Oklahoma—		
Oklahoma City	132,760	128,220
Seminole-St. Louis	140,170	131,240
Remainder of State	235,675	241,450
Total Oklahoma	508,605	500,910
West Texas—		
Hendricks	48,080	50,510
Yates	93,687	94,343
Remainder	92,922	97,528
Total West Texas	234,689	242,381
North Louisiana	40,505	41,250
Arkansas	48,385	47,935
North Central Texas	80,952	84,176
Texas Panhandle	52,813	53,424
East Central Texas	118,822	89,343
Kansas	111,150	112,115
Total Mid-Continent area	1,195,921	1,171,534
Gulf Coast	170,481	174,137
Southwest Texas	83,326	81,113
Eastern	109,500	111,500
Rocky Mountain area	94,244	91,346
California—		
Santa Fe Springs	71,500	71,500
Long Beach	90,250	91,500
Playa Del Rey	29,500	29,500
Elwood	32,500	33,000
Ventura Avenue	45,250	45,000
Kettleman Hills	25,500	26,000
Remainder of State	230,000	229,500
Total California	524,500	526,500
Total United States	2,177,972	2,155,630

→ **Increase 22,342 Bbls. Daily** ←



Refinery Markets Are More Stabilized

Gasoline in Demand in Oklahoma First of Week. Less Disposition to Reduce Prices. Furnace Oils Weak

By C. O. Willson

Following additional reductions in several products the latter part of last week, the refined market in Oklahoma (Group 3) appeared to be on a more stable basis the first of this week.

Buyers after waiting as long as possible following the recent reductions in posted crude oil prices were placing more orders the first of the week both on contracts and in the spot market. The gasoline market is still far from active so far as current business is concerned, but sellers are expecting a gradual improvement in demand with the advent of the spring season.

Price levels on the various grades of refinery gasoline are about the same as last week. U. S. Motor grade was generally quoted at 3½ to 4 cents a gallon. Occasional sales both for resale and direct to the trade are being made under this level but the quantity of this distress material is not sufficient to be an important market factor.

A comparison of prices this week and last week in other products will show several declines. Furnace oils and gas oils are especially weak and sales one-eighth and one-fourth under last week's quotations are being made. The heavy fuel oils are inactive and some grades have been reduced in price. Although most refiners have not reduced their kerosene quotations, the product is moving slowly with low-priced material available in areas outside of Oklahoma.

Prices at Bottom

Many of the trade, including buyers as well as sellers, have expressed the opinion that prices on most of the products refined in Oklahoma will not go lower, with several expressing the opinion that prices will slowly recover. This prediction is based on the expectation that some plan of proration will be worked out for the new East Texas fields and present proration programs will be continued in other Mid-Continent areas. Although there has been some agitation for dropping all proration agreements it does not appear at this time that this view will prevail.

In the event that proration agreements are continued it is assumed that the excess crude oil which has been available under the market will disappear and the refined market will be backed with a stronger crude oil situation than has prevailed over the past few months. This development is necessary before any sustained recovery in the refined market is possible.

The assumption of some buyers that with the lower crude oil prices refiners could make additional reductions in their refinery prices, is not true. As shown in these columns last week the average refiner, particularly those operating on a skimming plant basis, is doing well if he is breaking even in his plant operation. This situation was reflected the past week in the efforts of several refiners to buy crude oil under the new posted prices, the refiners claiming that due to the low prices prevailing for refined products it was still impossible to operate their plants without losses.

Due to this situation it is hoped that the lowest priced factors in the Mid-Continent Field will see the necessity of advancing prices at least in line with present operating costs. The alternative is a continued attempt to buy crude oil under the market a policy which if generally successful will bring another reduction in posted prices for crude oil and refined products which in turn means lower tank wagon and service station prices.

Favorable Factors

Despite the unsettled conditions in all branches of the industry there are those who are confidently predicting improvement in Mid-Continent refinery prices. The optimistic point to current statistics in support of their views. The report of the American Petroleum Institute as of March 7 shows total stocks of gasoline on that date of 45,789,000 bbls. This compares with 53,132,000 bbls. on March 12 of last year, a decrease of approximately 15 per cent with a consumption at least as great as it was last year.

Of particular interest to Oklahoma and Kansas refiners are the data which show that gasoline stocks at refineries in those two States and Missouri were 1,471,000 bbls., or 30 per cent less than they were a year ago. Crude oil runs to stills in the two States are approximately 55,000 bbls. a day less than they were a year ago.

While it is true that the aim of the refining industry to keep gasoline inventories at refineries under 45,000,000

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REFINED MARKET BAROMETER

Although some areas reported more stable conditions in refinery sales, price trends on the whole continued downward. The gasoline market was disturbed with additional cuts in crude oil quotations and scattered reductions in gasoline tank wagon and service station schedules. In some areas, a better gasoline demand was reported and it was hoped that prices could be stabilized at present levels. The kerosene market continues weak with lower prices quoted by several refiners. Furnace oils and gas oils are moving slowly. The marine demand for heavy fuels continues fair but otherwise the market is dull. Natural gasolines are lower both in California and the Mid-Continent. Lower prices became effective in steam refined stocks and bright stocks. Wax demand slow and prices lower.

East Coast—Offers of Rumanian gasoline to coastal buyers important development of past week. Gasoline prices steady. Spot kerosene prices reduced. Prices on several grades of lubricants reduced. Bunker oil steady. Paraffin wax prices lower.

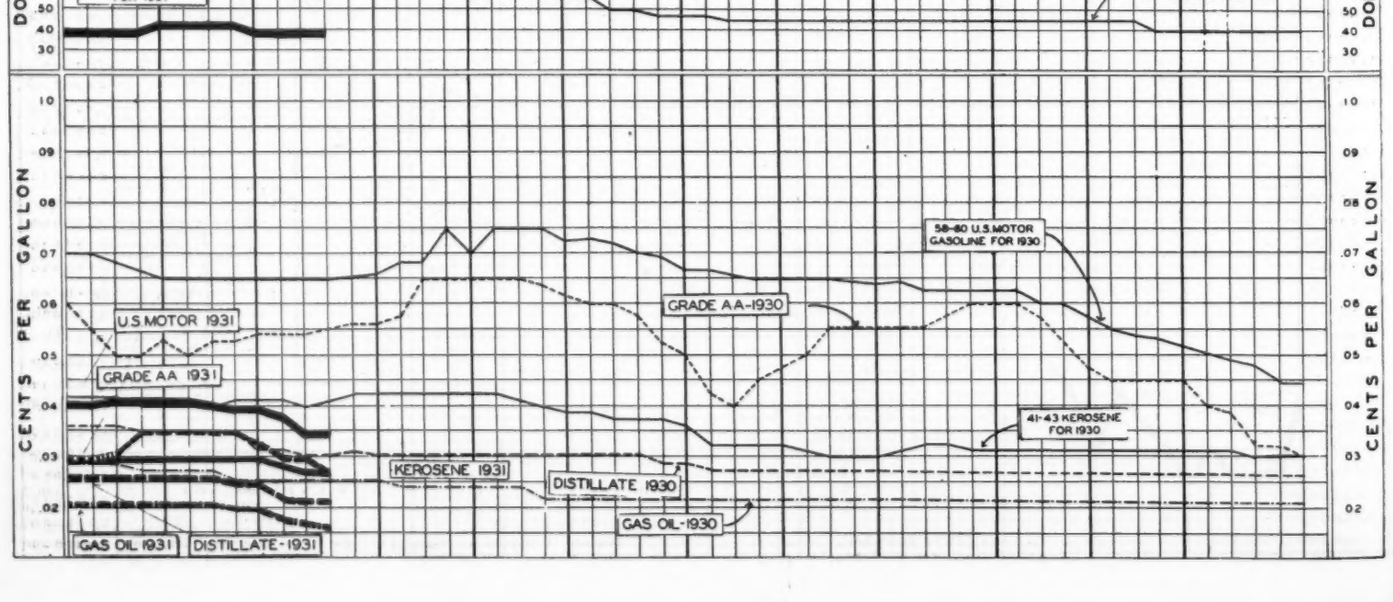
Mid-Continent—Some improvement noted gasoline demand but prices continue at low levels of last week. Kerosene slow. Furnace oil and gas oil weak and prices lower. Natural gasoline prices lower. No important changes in lubricants. Wax prices reduced.

Chicago—Fair demand for gasoline first of week at low prices. All furnace oils slow and prices lower. Gas oil prices lower. High gravity fuel oil quotations reduced. Kerosene demand fails to improve.

Pennsylvania—Some grades of low cold test neutral oils and bright stocks advanced but otherwise market was unchanged.

California—Refinery market following recent reductions in crude oil and gasoline tank wagon and service station prices.

Gulf Coast—Gasoline market weak and prices lower. Slow demand for pale and red neutrals. Gas oil prices reduced. Fuel oils steady.



Crux of Situation Lies in East Texas

Necessity of Prorating That Field in Like Manner With Other Flush Fields Emphasized by President and Governors

By James McIntyre

A statistician figured last week that the producers of oil in the United States were receiving about $1,300,000 less per day for their product on March 10, 1931, than they were for the same quantity of oil on the same day a year ago. With the more recent cuts in price in California this difference in producers' income has been made even more serious, and there is danger of producers' income becoming smaller unless something is done to control the new East Texas field with its threat of large unrestrained production.

A year ago the production of the United States was 483,000 bbls. per day greater than it was in the week the recent price cuts were made, yet the average price of 37 gravity crude, the weighted average of the combined fields of Kansas, Oklahoma, North Central and East Central Texas and North Louisiana was $1.23 per barrel. The above named high-grade fields contributed 910,000 bbls. per day to the 2,538,000-bbl. production of early in March, 1930. The same fields contribute only 822,000 bbls. to the production of 2,155,000 bbls. per day for the week ending March 7, yet the price was cut from 98 cents per barrel as of March 4, 1931, to 61 cents per barrel. The industry was as well aware of the potential production of the country a year ago as it is today with the exception of three fields, Kettleman Hills, Calif., Hobbs, N. M., and the new East Texas field. Kettleman Hills and Hobbs have always been under control, so there remains only the East Texas field to take the burden of blame for being the straw that has broken the camel's back. Producers there were willing to sell their product at the ridiculous sum of 40 cents per barrel, or less, and this, coupled to the seeming eagerness of some of them, at least, to produce the field unrestrained, together with the fact that the field has an enviable geographical position, created a condition that alarmed purchasers of crude oil in every other field from Ohio to California, and north of the Gulf Coast area, the result of which panic was the big reduction in crude prices.

Two California Cuts

In California gasoline price cutting led to a general crude cut on March 10 which was followed by another on March 16 led by the Union Oil Co. Compared with the prices of a year ago the Signal Hill Field (Long Beach) received a cut on 30 gravity crude of 57 cents per barrel, or from $1.25 to 68 cents. Huntington Beach received the same treatment. Santa Fe Springs Field was cut 52 cents on 40 gravity crude. Oils from 20° upward are considered refinable crude or high-grade oil in California. Twenty gravity oil a year ago sold for 85 to 89 cents in the fields above mentioned but has been cut to 66 cents. Forty gravity oil has been cut from $1.83 to 69 cents in Huntington Beach; $1.83 to 70 cents in Santa Fe Springs, while the top grade in Santa Fe Springs has been cut from $1.65 to 68 cents.

The average oil man may wonder why the producer is paid vastly less in all fields this year than at the same time last year, with production curtailed nearly 500,000 bbls. a day under the production last March. One reason given is that crude oil and gasoline were not being bootlegged at that time, while they are being peddled at cut prices now. It is said that there has been a realignment of markets in the refined marketing trade that has taken from some refiners the market they enjoyed last spring and that in their anxiety to line up new business to take the place of that which they lost, they are underselling competitors. This is made possible because some Texas producers have sold stored crude at prices 50 cents and more under the market. This wholesaling of crude oil at cut prices was the cause of local crude market cuts in Oklahoma and Texas, creating an unsettled condition which spread and finally became so serious as to cause the whole price structure to settle.

Still Selling Below Market

One reason the Stanolind Crude Oil Purchasing Co. gave for its price cuts of March 5 was that 100,000 bbls. of Mid-Continent oil was being sold at such a low price that the company was forced to meet it. Now that the price has been met, it does not appear to have stopped price cutting as it is still reported that a large volume of crude is being sold in East Texas under the Stanolind price and even under the only posted price in the East Texas Field, which is 40 cents per barrel. The production of the Rusk-Gregg area in the past week averaged 74,681 bbls. per day, an increase of 27,935 bbls. per day over the figures of the week before, and if the Texas Railroad Commission does not put the field under the strictest proration, in line with the treatment accorded such fields as Kettleman Hills, Yates, Hobbs and Oklahoma City, it will be pouring out an enormous flood of oil in a few weeks.

President Hoover's Opinion

Every governmental agency from the President of the United States down is trying to help the oil industry in its effort to help itself out of the present serious plight, but all are agreed that the proration of East Texas is necessary if better conditions are to be expected. President Hoover said on Friday that negotiations looking to a reduction in imports will have little effect on the situation unless the East Texas field is prorated on the same basis as other new pools. Secretary Wilbur expressed the opinion that persistent overdrilling of wells had had its inevitable result and that we now face the necessity of meeting the hard, cold laws of economics. "Only so much oil and oil products can find a domestic or foreign market in this period of depression," he said, "and only through firm and wide proration agreements, strictly carried out, can we hope to keep domestic production at sane levels, leading to stable and reasonable prices."

Secretary Wilbur was speaking at the time to The Oil and Gas Journal's Washington correspondent, Charles E. Kern. Mr. Kern asked: "Supposing the importing companies agree upon some plan to lessen imports of crude and refined products and to use domestic oil in place of such imports, to what extent will that relieve the conditions facing the oil industry?" To which Secretary Wilbur replied, "Not more than 3 to 5 per cent."

Governors for Proration

The representatives of the governors of Oklahoma, Texas, Kansas, Wyoming, Louisiana, Arkansas, California and New Mexico all favor proration. Governor Murray of Oklahoma is one of the staunchest prorationists of all. When he took up the reins of office he frankly declared he knew little about the oil business but that he had set out to learn it and it was not long before he became the leader among the governors willing to lend their efforts to assist the industry to effect stabilization. Gov. Ross S. Sterling of Texas is another who is strongly behind the oil men. He feels his responsibility in the matter so keenly that in order to strengthen the proration situation in Texas he caused a bill to be introduced in the Texas legislature on Tuesday creating an oil conservation commission to "meet a great and critical public emergency and avoid irreparable economic disaster." He would take the oil, gas and pipe line supervision out of the hands of the Railroad Commission, which in his opinion is already burdened with enough responsibilities outside the oil industry. Governor Sterling considers that Texas conservation laws are adequate and that they need only a commission that can devote its time solely to the oil and gas situation.

The state legislature of Kansas has passed a conservation law patterned after the Oklahoma law, and Governor Woodring said on Monday that he would sign it. The Oklahoma Corporation Commission and the Texas Railroad Commission have been great sources of help in the proration movement and it is to the Texas Railroad Commission that the industry now looks for the one supreme measure of relief, the proration of the East Texas area, without which the industry may suffer the hardest blow it has received in 70 years.

The Texas Railroad Commission will conduct a hearing on Tuesday, March 24, to listen to arguments on the question of prorating the production in East Texas. It promises to be a hot session and will attract some of the biggest producers in the Mid-Continent Field, and many small producers whose properties are jeopardized by the prevailing low prices of crude oil and who feel they must go out of business if the situation grows worse.

The treatment of the East Texas situation is summed up in the words of Ray Lyman Wilbur, Secretary of the Interior and chairman of the Federal Oil Conservation Board, when he said, "When one has to drive wild horses he needs a strong rein and a firm hand."

Question of Imports

Meanwhile the efforts of Chairman Wilbur to induce importers to voluntarily limit their shipments of crude and refined oil into the United States have met with encouragement. A Washington dispatch on Friday said American oil importers agreed to limit the amount brought into this country in an effort to aid the distressed petroleum industry.

The agreement was announced by Secretary Wilbur, who said it would reduce imports several million barrels annually. Negotiations with the companies were conducted by Secretary Lamont under instructions from President Hoover.

Wilbur, as chairman of the Federal Oil Conservation Board, said all the importers except the Standard Oil Co. of Indiana had pledged curtailment. That company, he added, had shown a willingness to help but had found a reduction agreement might conflict with contracts it had.

"The Mellon interests," Secretary Wilbur said, referring to the Gulf Oil Co., "and the Standard of New Jersey are among those which have agreed to harmonize imports with domestic restrictions, as have all other importing companies with the exception of the Standard of Indiana."

Wilbur said he had been advised informally the Royal Dutch-Shell company and the Pan American Petroleum Co. would join in the move.

The voluntary curb affects primarily South American oil produced chiefly in Venezuela and Colombia, the two largest exporters to the United States.

Wilbur said the Government had no power to negotiate a formal agreement with the companies nor could they under existing laws agree with each other. He added that each had agreed voluntarily to reduce imports.

The interior secretary declined to estimate the exact reduction, saying it would depend upon what each company had to do in reducing imports.

These problems are for the companies themselves to work out, Wilbur said, and each must decide how much its percentage can be.

"All we can do is present the question to them along with suggestions for action which they translate into terms of their own business conditions," he added.

"Their willingness to help is evident, but it will require some time for them to get their programs definitely worked out

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PRODUCERS AND REFINERS IN CALIFORNIA ARE HEAVY LOSERS

LOS ANGELES, Calif., Mar. 16.—The expectation that a further reduction would be made in California crude oil prices if the gasoline war continued unabated on the Pacific Coast became a reality this week when the Union Oil Co. announced a second cut effective March 15.

The new reduction posted by the Union ranging from 1 cent per barrel on the heavier grades to a maximum of 34 cents on crude testing 40 degrees and higher represents an average reduction of approximately 15 cents per barrel.

No change was made in the price of crude oil below 20 gravity.

The first reduction in crude oil price schedules this year occurred on March 10 at which time the Union announced a drastic cut ranging from 5 cents per barrel on heavier grades to a maximum of 92 cents on oil testing 40 degrees and above. The Union had apparently hoped that its initial reduction would have been sufficient to protect it against substantial losses accruing from the sale of gasoline below cost at several places due to uneconomic competition, but subsequent reductions in gasoline prices made the new reduction in crude prices absolutely necessary.

Gasoline prices have been consistently tumbling since late in February but it is apparent that the bottom has just about been reached. The first slash in gasoline prices occurred on February 25 at which time a reduction of 2 cents per gallon was made by one of the large companies. On February 28 another cut of 4 cents was made and a further reduction of 2 cents instituted on March 6. Competition forced an additional cut of 1 cent per gallon on March 12 and the intensive bid for gallonage all along the Pacific Coast resulted in another cut of 1 cent per gallon on March 14.

Gasoline prices have dropped almost 50 per cent in less than three weeks, declining in southern California territory from 20½ cents per gallon to 10½ cents, including the regular gasoline tax of 3 cents per gallon.

The first reduction in crude oil prices is the equivalent of approximately $150,000 per day. As a result of the second cut, if made general, producers will receive about $50,000 per day less for their crude. The income of refiners, has likewise been cut to a very substantial extent due to the existing gasoline price war. Existing prices for crude oil are the lowest since 1923 with one possible exception when disciplinary action was instituted by the Standard because of the refusal of operators to curtail at Santa Fe Springs, Long Beach and Seal Beach.

Governors' Committee Advises Wisely

Report of Conditions and Recommendations Indicate Comprehensive Grasp of Petroleum Situation

The complete report and recommendations of the Oil States Advisory Committee, representing the governors of Oklahoma, Texas, Louisiana, Kansas, California, Wyoming and Arkansas, which met in Texarkana, Tex., are given below. The findings of the committee and its recommendations have been received most favorably by oil men who have had the opportunity of studying the report.

The members of the committee are considered to have been really representative of the governors of their respective states and it is believed their report may be taken as representing the attitude of the governors on the petroleum situation. Following is the report:

Whereas, at a conference called by Governor William H. Murray of Oklahoma and participated in by Governor R. S. Sterling of Texas and representatives of the governors of New Mexico and Kansas, held at Fort Worth, Tex., February 28 and March 1, 1931, an agreement was entered into creating an Oil States Advisory Committee to study the present distressed condition of the petroleum industry and to make recommendations for uniform legislation looking to the relief of said industry and the conservation of oil and gas, and also providing for invitations to be issued to the governors of other oil-producing states to appoint representatives on said committee:

And whereas, the first session of this committee is being held this March 9, 1931, at Texarkana, Tex., with representatives attending from the States of Oklahoma, Texas, California, Arkansas, Louisiana, Kansas and Wyoming, at which meeting there has been a full discussion of the entire oil situation:

Now, therefore, said committee hereby adopts the following resolution:

Whereas the oil industry in the United States and over the entire world is suffering from a general condition of overproduction and slack demand, resulting in depressed prices for crude oil and its products and great distress among all engaged in the industry, including particularly the producers of crude oil as well as those engaged in the refining and marketing business, as well as unemployment and threatened great waste of crude oil reserves by the forced abandonment of approximately 300,000 small wells in the oil-producing areas of the United States alone, forever precluding the recovery of many millions of barrels of oil and thereby wasting a great natural resource;

And whereas this condition is the result of extreme and uncontrolled competition within the oil industry, resulting in the overdrilling of many areas and a mad race for production on every hand which has built up present potential production of oil far in excess of the ability of the market to absorb same at prices profitable to the producers of such crude oil; such conditions calling for steps by the various legal authorities of the states and of the United States which will permit the oil industry to put its house in order and control its production to fit the market demand;

And whereas if present conditions continue unchecked and unabated, they will result not only in the abandonment of hundreds of thousands of small wells but in the elimination of virtually, if not entirely, the army of small or independent oil producers in this country, with the survival of only a few of the great major companies, thereby resulting in a condition of monopolistic control of the entire industry, rather than a desired state of reasonable competition, all of which must be avoided by such control and regulation of the business of producing and handling crude oil and its products as will result in continuing in the business independent and major producers and handlers alike;

And whereas, within the last few years, systems of proration of oil production have grown up within the States of Texas, Oklahoma, Kansas, New Mexico and California, in the effort to hold production of petroleum within the demand, but said proration efforts have failed to result in fair prices for crude oil, said prices having fallen steadily within the last year to such point that a great majority of the oil operators of the United States are now faced with ruin and financial extinction;

And whereas, concurrently with the development of the proration system, there have been vast increases, within the last five years, in the imports of crude oil and gasoline into the United States, thereby nullifying the curtailment efforts that have been put forth, depressing the market and adding to the distress of domestic producers;

Now, therefore, be it resolved by said Oil States Advisory Committee that it hereby recommends the following steps to the governors of the various oil-producing states and to the legislatures thereof:

Committee's Recommendations

1. That this committee be continued in existence for the purpose of correlating the activities of the various conservation bodies of the oil-producing states, in an advisory capacity, and also to make recommendations as to the amounts of oil which should be produced within the United States and as to the prices which should obtain therefor, so as to assure to all producers a fair and reasonable return on their necessary investments in handling their business of mining for and producing oil; and also to hold conferences and agree with the major purchasers of crude oil as to quantities of production wanted, and prices to be paid therefor, with due consideration to the various grades of oil in the various fields and the geographical locations and conditions of gathering, transporting and marketing such crude oils; and to handle all other matters treated herein.

2. That said committee also be empowered to confer with and treat with the major importers of crude oil as to imports of crude oil and petroleum products, limiting the same to reasonable amounts with due regard to proration measures in force and to the situation of demand and supply within the United States, so that such imports may not result in the pulling down or destroying of the crude oil price structures in the United States;

3. That said committee further shall discuss, confer and agree with the various holders of crude oil in storage within the United States as to fair and reasonable schedules of withdrawals from storage of such crude oil, so that such withdrawals may be accomplished in a rational manner without interference with the market for fair amounts of crude oil currently being produced;

4. That in all such negotiations and in the dealings of the various state and national authorities with the oil business it be immediately and widely recognized that a fair price for crude oil is essential to its conservation, so as to prevent wastes of oil from diverting it to uses below its intrinsic value, to prevent the too rapid exhaustion of underground supplies of crude oil and of the gas energy which is necessary to bring it into the wells and to the surface, to prevent the abandonment of countless wells which otherwise would produce large quantities of crude oil that could never be recovered if those wells should be abandoned;

Federal Co-operation

5. That said committee be empowered to proceed with proper negotiations with the President of the United States, the Secretary of the Interior, the Secretary of Commerce, the Federal Trade Commission, the Federal Oil Conservation Board, the Department of Justice and any or all other agencies concerned therewith to secure a recognition of the fact that it is necessary not only to conserve crude oil but to procure a fair price therefor, in order to prevent abandonment of wells, physical and economic waste and other conditions resulting from the present distress situation; in other words, that intelligent and fair control of the production of such a natural resource as oil and gas is necessary not only to the producers thereof, but to the public as well, by preventing the creation and growth of monopoly, with the resultant dangers of high and unfair prices for petroleum products in the not far distant future;

6. That pending the working out of such improvements and betterments as are contemplated in this resolution, all of the oil-producing states continue in force the present systems of oil proration, without any abatements or lessening of restrictions, maintaining the principle of preventing waste by not allowing the production of crude oil to exceed the market demands therefor;

7. That each of the major oil-producing States, Texas, Oklahoma, Kansas, California and New Mexico, immediately take steps through their legislatures to create oil and gas conservation commissions, or other proper authorities, to be appointed by the governors of those States, for as long terms as possible, for the sole business of enforcing the laws of the various States as to conservation of oil and gas, adopting and enforcing rules for the reasonable carrying out of such laws by said commissions; thereby removing from undue political influence the activities of such commissions and eliminating from the oil and gas conservation programs of the various states the dangers of considerations of vote-getting;

Enacts Uniform Laws

8. That all of the oil-producing states shall as rapidly as possible enact uniform laws for the conservation of these resources, similar to the laws now in force in Texas and Oklahoma, which laws are generally regarded as sufficient to handle the situation, provided systems of administration are provided which will insure full, fair and fearless enforcement of the aforesaid laws; by this it is not meant that all of the oil states necessarily must be immediately subjected to proration, but they should have their legal systems provided for in case they should have flush fields brought in within their borders of major proportions;

State Conservation Agencies

9. That the recommendations of the Oil States Advisory Committee, as hereinabove provided for, shall so far as possible be given due consideration by the

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STERLING ASKS LEGISLATURE TO ESTABLISH PRORATION COMMISSION

By Raymond Brooks

AUSTIN, Tex., Mar. 16.—Governor Ross S. Sterling, Monday asked the legislature to create an oil conservation commission to "meet a great and critical public emergency and avoid an irreparable economic disaster" by the control of oil production.

He sent a copy of a proposed bill along to the legislature. It would take oil, gas and pipe line supervision out of the hands of the railroad commission.

Present conservation laws are adequate, Governor Sterling told the legislature, but the railroad commission, which administers them, is burdened down with numerous other duties and facing additional motor vehicle administration. These "render it practically impossible for the commission to give the situation attention so urgently needed," he said. Governor Sterling said he followed the recommendation of the Oil States Advisory council in asking a commission having the sole duty of administering the oil and gas conservation laws.

He said the commission will involve no cost to the State.

"I cannot too strongly emphasize that the present condition creates a great and critical public emergency requiring prompt action on the part of the legislature if an irreparable public disaster and the loss of many millions of dollars to the school fund and general revenue is to be averted," the message said.

Governor Sterling quoted the report of the Oil States Advisory council made at Texarkana a week ago that "if present conditions continue unchecked and unabated, they will result not only in the abandonment of hundreds of thousands of small oil wells, but in the elimination of virtually, if not entirely, the army of small or independent oil producers in this country, with the survival of only a few of the great major companies, thereby resulting in a condition of monopolistic control of the entire industry."

He quoted the council's recommendation "that pending the working out of such improvements and betterments as are contemplated in this resolution, all of the oil-producing states continue in force the present system of oil proration without any abatement or lessening of restraint, maintaining the principles of preventing waste by not allowing the production of crude oil to exceed the demand therefor."

"That each of the major oil-producing states take steps through their legislatures to create oil and gas conservation commissions, or other proper authorities, to be appointed by the governors of those states, for as long terms as possible, for the sole business of enforcing the laws of the various states as to conservation of oil and gas, adopting and enforcing rules for the reasonable carrying out of such laws by the commissions."

"Texas has on its statute books," Governor Sterling's message said, "adequate conservation laws under which adequate regulations can be prescribed for the production of oil and the waste of oil and gas. The laws are complete and adequate. The railroad commission at present is charged with the duty of enforcing those laws. Not only so, but under the law the commission is also charged with the duty of regulating the rates of railroads, motor buses and motor trucks, and it seems certain that under bills now pending before the legislature, the further regulation of buses and trucks will be required, thus putting upon the commission a heavy burden in the administration of these various duties, and renders it practically impossible for the commission to give our present situation the attention which is so urgently needed."

Care Is Needed in Drilling East Texas

This Area Will Require Application of Geological and Engineering Skill at Every Location If Profit Is to Be Made

By L. G. E. Bignell
Petroleum Engineering Editor

The new oil fields recently opened in Rusk and Gregg Counties, Texas, are now getting a rather active play by both individuals and some of the independent oil companies because this area seems to be offering an opportunity for quick returns on the investments, but with the oil selling at prices averaging about 40 cents per barrel there is some room for doubting the ability of all investors to secure adequate returns on their money.

This field has caused considerable discussion in regard to the correct correlation of the producing sand, some geologists maintaining that it is the same as the producing sands of northern Louisiana and Arkansas and therefore should be known as the "Tokio." Others are equally as certain that this is a Woodbine sand similar in most ways to the producing sands of Powell, Mexia, Wortham and other fields in Texas.

Still another group seem to think that it should be known as the equivalent of the Eagle-Ford shales, that it should be considered as the shoreward member of this formation that has been deposited on the flank of the Sabine uplift.

Each group of geologists has its following, but regardless of the name applied to the producing horizon in the Joiner, Kilgore and Longview Pools it seems to be quite generally agreed that the producing sand in each of these pools is of the same age and character as that of each other pool.

It also seems to be agreed that there are good reasons for believing that these three pools will be joined together by sands found in drilling wells between them, and it also seems possible that the whole producing horizon will be extended somewhat north and south of the present limits of production in the Joiner and Longview Pools, the south and north pools of this group.

Possibilities of Very Large Pool

All of this seems to indicate that as this development progresses this is going to be a very large pool, one of the largest producing areas in the United States, even if it should not come up to the expectations of many in thickness and porosity of sands.

Considering this as one continuous producing sand it is estimated that it will create a pool that will be about 30 miles long in its general north and south direction, and from present indications it will be from 2 to 3 miles wide throughout this entire distance.

If the pool is 2 miles wide and 30 miles long it will contain approximately 38,400 acres.

It has been reported that cores from some of the wells show a porosity of about 18 per cent. Wells so far drilled have had a maximum thickness of productive sand of 30 feet but the average thickness of this producing sand is not known yet.

The porosity of this sand is not as high as that reported on some of the Woodbine sands from other pools which have had porosities as high as 25 per cent.

Already experienced oil men, with the general economic picture in mind, are predicting that more money will be spent in exploring and developing the new field in East Texas than will be taken out of it in the sale of crude oil. It is impossible to predict the average price the oil from the new field will bring or to say definitely what the ultimate production of the field will be, but using current estimates on total oil recovery and the current posted price of oil in that area as as a basis, some idea can be had of what relation the cost of development may be to the estimated income from production.

If the pool should produce as high as 20,000 bbls. to the acre it would yield a total of 768,000,000 bbls. of oil. At the current posted price of 40 cents per barrel this would give a gross return of $345,600,000. Deducting the one-eighth royalty and 3 per cent for b.s. and 3 per cent for state tax, the net income to the producer would be about $281,664,000.

Drilling and Pumping Conditions

This field is being drilled by rotary system and as speed is the essence of each contract some remarkably fast drilling has resulted. Many of the wells are being drilled with the heavy rotary equipment used in drilling the deep wells of Oklahoma City and with this machinery it is possible to force the holes down very rapidly.

It is reported that some wells have been drilled to the top of the sand in 11 days. The wells usually are started with 12½ or 10-inch surface casing and about 250 feet of this size pipe set and cemented. The hole is then reduced for the 6⅝-inch string and drilled to a depth of approximately 3,600 feet, where this casing is set and cemented with 200 to 250 sacks of cement.

After this cement has set it is customary to core into the sand and make a test for oil content. If satisfactory showing is secured it is next in line to set about two or three joints of 5½-inch liner in the hole that has been drilled into the sand from 10 to 30 feet, depending upon the sand thickness.

As the pressure in the producing horizon in this field is not to exceed 500 pounds it has been found necessary to run a string of tubing (using 2½-inch diameter) nearly to the bottom of the hole and produce the well through it.

After the tubing is set, the well is brought in by reducing the gravity of the rotary mud by pumping clear water into the well through the tubing until the mud has been washed out. Usually the well will then begin to flow through the tubing, and in only a few instances has it been necessary to swab the wells in.

Crooked Holes

The practice of drilling these wells as rapidly as possible with no restrictions on the drilling contractor as to straightness of the hole, has made it almost certain that these holes will be very crooked when finished and this is going to have its effect in producing from this sand when the natural head falls to that pressure where the well will no longer flow naturally.

The use of gas lift cannot be resorted to in this field like it was in Seminole and elsewhere, for the rock pressure in the producing horizon is subnormal. If it was equal to the normal hydrostatic head for the depth of sand it would be about 1,500 pounds, whereas if it is at a maximum only about 450 pounds at casinghead and in some wells it is reported to be as low as 200 pounds at well head when the well is first brought in.

With crooked holes the pumping problem will be increased and the cost of lifting this oil will go up also, so the usual pumping cost of about 20 cents per barrel prevailing in many of the fields in Louisiana and Arkansas of this same general type will be sufficient.

If this field can produce 250,000,000 bbls. of the estimated 768,000,000-bbl. potential by natural flow methods and sell it for $0.329 net per barrel (after deducting for royalty and the two 3 per cent deductions) the producers will receive about $82,250,000 net.

This will leave 518,000,000 bbls. approximately to be produced by swabbing or pumping, at a cost of about 25 cents per barrel. This would net to the producers, after deducting royalty, 3 per cent deductions, and charging 25 cents for pumping, an income of about $31,000,000 for this remaining oil, or give them a gross income for all of the oil produced by natural and pumping methods of about $113,172,000.

Drilling Costs Estimated

Wells are being drilled on 2-acre and 3-acre tracts in all parts of the field, but if one well were drilled to each 10 acres of this 38,400-acre pool it would mean 3,840 wells, and it is estimated that the drilling costs alone, with casing and cementing, will be about $20,000 per well.

At one well to 10 acres this would require an investment of about $76,800,000, and when tanks, lease pipe lines and pumping equipment are added at a cost of about $8,500 per well the total cost will amount to $109,440,000, or there will be a margin of only about $3,732,000 for all other expenses.

In these estimates every hole drilled is assumed to come in a producer and every well have an equal amount of oil. Without doubt there will be many dry holes drilled in proving up this area, for there are no surface indications of the position of the underground producing horizons and therefore many leases will be drilled east and west of the pool as well as some to the north and south ends of the field.

All of this will mean added expense in developing this field at this time when this extra oil is absolutely unnecessary and is in fact a detriment to the industry.

It is known that many wells will be drilled with actual cash outlays of less than the estimates given above, for many drilling contractors are taking contracts for an interest in the well, or the lease, and others are supplying pipe and equipment for interests in the well. However, in the above estimates nothing has been added for acreage costs, interest on money, depreciation and many other items of expense common to the development of all fields.

Low Prices Do Not Stop Drilling

It often has been advocated that if the price of oil was placed low enough drilling would be so retarded that new fields would not be opened. This might have been possible in the past when there was not so much idle equipment available for drilling wells.

Drilling contractors with idle equipment, much of it paid for, are willing to risk some money on ventures of this kind, for their total investment is not excessive if it is estimated at a drilling cost of $3.50 per foot for a 3,600-foot hole, or $12,600. At 40 cents a barrel this would represent only 31,500 bbls. of oil to the contractor to repay him for his labor. With wells making upward of 10,000 bbls. of oil per day it will not take him long to secure his share.

This provides a cheap way to get the holes drilled and in many cases the other operations required in developing a lease are met by somewhat similar means, so the low price of oil does not mean much

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TEXT OF KANSAS CONSERVATION ACT, SIGNED BY GOVERNOR

The Kansas oil conservation bill, which passed both houses of the Kansas State Legislature and which Governor Woodring signed Tuesday is given below:

Sec. 1. Waste prohibited. That the production of crude oil or petroleum in the State of Kansas in such manner and under such conditions as to constitute waste is hereby prohibited and shall be unlawful.

Sec. 2. Waste defined; protection. That the term "waste" as used herein, in addition to its ordinary meaning, shall include underground waste, surface waste and waste of gas energy, and waste incident to the production of crude oil or petroleum. The Public Service Commission shall have authority to make rules and regulations for the prevention of such wastes, and for the protection of all fresh-water strata, and oil and gas bearing strata encountered in any well drilled for or producing oil.

Sec. 3. Production regulated; discrimination of purchaser prohibited. That whenever the full production from any common source of supply of crude oil or petroleum in this State can only be obtained under conditions constituting waste as herein defined, then any person, firm or corporation having the right to drill into and/or produce oil from any such common source of supply may take therefrom only such proportion of all the crude oil and petroleum that may be produced therefrom, without waste, as the production of the well or wells of any such person, firm or corporation bears to the total production of such common source of supply. The Public Service Commission is authorized to so regulate the taking of crude oil or petroleum from any one common source of supply within the State of Kansas as to prevent the inequitable or unfair taking from such common source of supply of such crude oil or petroleum by any person, firm or corporation and to prevent unreasonable discrimination therein: Provided, that the power granted in this section shall not apply to wells from which the average daily production of crude oil or petroleum is less than fifteen (15) barrels per day.

Sec. 4. Wells gauged. That for the purpose of enforcing section 3, said Public Service Commission, under rules and regulations to be made by it, shall provide for a gauge of each well to determine its production and the total production from the common source of supply, or by such rules and regulations to establish such other standard or standards as the commission may fix to determine the potential production of each well in the common source of supply and the total potential production of said common source of supply for the purpose of applying and enforcing the provisions of Section 3. The commission is hereby authorized to employ or appoint such agent or agents as may be necessary to enforce and administer the provisions of this act, such agent or agents, with the exception of clerical help, to be a person or persons experienced in and conversant with the oil business.

Sec. 5. Enforcement of act. The Public Service Commission shall have and is hereby given jurisdiction and authority over all matters involving the application and enforcement of this act, and shall have authority to make rules and regulations for the prevention of waste as herein defined. That any person, firm or corporation, or the attorney general on behalf of the State, may institute proceedings before the Public Service Commission or apply for hearing before said commission upon any question relating to the enforcement of this act or the enforcement of any rule or regulation promulgated thereunder by said commission, and jurisdiction is hereby conferred upon

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Refiners Discuss New Developments

Important Trends in Specifications and Design of Equipment Revealed at W.P.R.A. Meeting. Russians Expanding Facilities

By C. O. Willson

The latest developments in specifications and methods of testing motor fuels and motor oils coupled with descriptions of some of the newest equipment available to refiners, featured the two-day meeting of the manufacturers' committee of the Western Petroleum Refiners Association held last week at Excelsior Springs. The technical program which was exceptionally well balanced in subject matter and timely discussions, was attended by over 100 operators connected with refining organizations in the Mid-Continent and Middle Western states.

L. R. Crawford, vice president of the Producers & Refiners Corp., and president of the association, presided at the opening session Wednesday afternoon. C. L. Henderson, vice president of the Vickers Petroleum Co., was chairman of the morning meeting Thursday and E. A. Metcalf, of the Standard Oil Co. of Kansas, presided at the afternoon meeting. Interesting discussions followed the presentation of some of the prepared papers.

Russian Conditions

A digression from the technical subjects, was a talk by F. C. Koch of the Winkler-Koch Engineering Co., Wichita, Kans., on "My Experiences in Russia." Mr. Koch recently returned from Russia after spending several months in that country installing refinery equipment. Mr. Koch's talk was largely confined to explaining economic conditions in Russia both within and outside the oil industry. His talk was illustrated with films.

He said that the Russian refinery operators were rapidly adopting equipment designed and fabricated in the United States. The equipment already installed includes the following, according to Mr. Koch:

Batoun refinery—Four Foster Wheeler vacuum and topping units; four Winkler-Koch cracking units; two Jenkins cracking units and one shell still battery. This refinery has a rated capacity of 65,000 bbls. daily.

Baku refinery—Two Badger topping stills; two Winkler-Koch cracking stills; one Graver topping still and miscellaneous cracking stills. This still has a crude oil capacity of 100,000 bbls. daily.

Grozny refinery—Six Winkler-Koch cracking units; two Foster Wheeler topping and vacuum units; two Jenkins cracking units and two shell still batteries. This refinery has a crude oil capacity of 60,000 bbls. daily.

Touapse refinery—Two Borrman topping units designed in Germany; one shell still battery and two Winkler-Koch cracking units. This refinery has a crude oil capacity of 35,000 bbls. daily. In addition to the above, one Winkler-Koch cracking unit has been installed at the Yaroslav refinery.

Antiknock Testing

The paper by Earl Bartholomew, director of the engineering laboratory for the Ethyl Gasoline Corp., Detroit, was followed by several questions from refinery operators who are evincing more and more interest in the antiknock properties of their motor fuels. In connection with the progress made in a uniform scale of measurement for antiknock testing, Doctor Bartholomew referred to the standard reference fuels explained by Dr. Graham Edgar of the Ethyl corporation in an article appearing in the March 6 issue of The Oil and Gas Journal, Page 101. These reference fuels are aiding materially in furnishing an economical method of determining knock ratings.

Doctor Bartholomew discussed the relation of the air-fuel ratio to the knock problem in cars. He explained that the investigations of his laboratory had shown for average motor car use, those fuels are the most desirable which produce maximum knock at the leaner mixtures. The data presented showed that the air-fuel ratio at which maximum knock occurs varies with different fuels.

"Although the actual knocking tendency of fuels is relatively less at the richer mixtures, engine manufacturers have taken advantage of the fact and have increased compression pressures to a point where knocking occurs even at the richer mixtures," Doctor Bartholomew explained. "If the carburetor of such an engine becomes partially clogged, the maximum knock-air-fuel ratio is approached and the knocking tendency is greatly increased."

Natural Gasoline Grades

The longest discussion of the meeting followed a talk on "The Application of the New Natural Gasoline Specifications," by S. S. Smith of the natural gasoline department of the Shell Petroleum Corp. These specifications were explained in an article appearing in the December 25, 1930, issue of The Oil and Gas Journal, Page 30, and later discussed by Mr. Smith in the January 29, 1931, issue, Page 68.

The new specifications are tentative for one year and are offered to take the place of the present five grades commonly recognized by the natural gasoline industry. Mr. Smith and other natural gasoline manufacturers stressed the fact that the new specifications have been made available for the purpose of aiding refiners in the utilization of their products. With the new specifications refiners are able to buy the grades best suited to their refinery needs. It is contended that at the present time refiners often buy one grade when another grade could more economically serve their requirements. The large number of grades proposed afford a much closer differentiation as to specifications and are based on exhaustive research work covering the properties of the hydrocarbons found in natural gasolines.

In the discussion which followed Mr. Smith's paper it was brought out that the new specifications fit in well with the trend toward vapor pressure tests in finished motor fuels, the aim of the average refiner being to secure the maximum volatility obtainable without sacrifice in any of the essential phases of car performance.

In reply to questions, it was stated that several manufacturers are in a position to furnish any of the proposed grades. However, it is believed for the present that seven or eight of the grades will cover practically all the refinery requirements. Queries from two refinery operators reflected the fear that the general adoption of these specifications might result in refiners paying higher prices for their natural gasolines. The manufacturers' answer to this attitude is, that while prices on the new grades will be adjusted—it is hoped—in line with the relative manufacturing costs, the additional cost will be offset in the increased value of the blended products.

"The figures of consumption of natural gasolines against the use of refined stocks show that there is average use of about 12 per cent of natural in total fuel sold," Mr. Smith said. "Practically all refinery stocks at present will stand up to 20 per cent blend of natural gasoline, with improvement in their performance characteristics. Many naphthas will improve with addition of as much as 35 per cent of natural gasolines and I know of blends in common use which actually go higher than 50 per cent. Since the evolution of the new specifications and the better understanding of blending possibilities that have come with our studies along this line, we in the natural gasoline industry still feel that we are justified in saying that we have something of value to the refiner which in many cases the refiner ignores to his own detriment.

"It must be understood in making this statement I do not mean that there should be indiscriminate use of high vapor pressure natural gasoline. I recognize that the vapor pressure of finished motor fuel should be very carefully controlled and that the improper use of excessive vapor pressure may be exceedingly harmful. However, with the new specifications, and the resultant possibility of buying and using vapor pressures as low as 14 pounds, there is no reason for hesitancy in using any amount necessary to get desired distillation ranges."

Trend in Lubricants

The paper by Dr. H. C. Mougey of the research department of the General Motors Corp. on "Lubricants from the Automobile Engineers' Standpoint" proved to be one of the most interesting discussions of trends in motor oil specifications ever presented at a meeting of refinery technologists. In his paper which is published complete in this issue, Doctor Mougey stressed the importance of actual service tests in determining the relative value of lubricating oils. Service conditions vary widely in cars and this is reflected in the results obtained with oils.

In reply to questions, Doctor Mougey elaborated the views expressed in his paper in regard to the use of light oils in cars. He contended that in using heavy oils, car owners were sacrificing performance for economy in consumption. This is particularly important he said in regard to starting cars, lubrication with heavy oils often being inadequate until some dilution of the oil in the crankcase had taken place. In this connection he minimized the necessity of frequent changes of crankcase oil.

Other papers presented at the meeting described recent developments in the design and operation of refinery equipment. F. M. Simpson and C. C. Wilch connected with the manufacturing department of the Empire Oil & Refining Co. described an up to date grease making operation.

Some unusual results both in yields and economical operation in gas recovery systems at refineries were explained by A. W. Burket, of Jackson Engineering Corp., in his paper on "New Developments in Refinery Gas Recovery Systems."

John Primrose of the Foster Wheeler Corp. gave operating data based on atmospheric and vacuum distillation of Mid-Continent crude oils.

Mr. Primrose's discussion was illustrated with several flow charts showing the main features of new types of distillation units. Performance data with a two-stage atmospheric and vacuum unit operating with Venezuela, Caddo and Oklahoma City crude oils were of particular interest.

CONVENTION PAPERS

The following papers presented at the meeting of the manufacturers' committee of the Western Petroleum Refiners Association have been published in the March 12 and 19 issues:

MARCH 12 ISSUE

"New Developments in Refinery Gas Recovery System," by A. W. Burket, page 34.

"Manufacture of Grease," by F. M. Simpson and C. C. Wilch, page 38.

"Atmospheric and Vacuum Distillation of Mid-Continent Crudes," by John Primrose, page 70.

MARCH 19 ISSUE

"Lubricants from the Automobile Engineers' Standpoint," by H. C. Mougey, page 30.

ELECT THREE NEW EXECUTIVES TO W.P.R.A. BOARD OF DIRECTORS

Three refinery officials who previously had not served on the board were elected to the board of directors of the Western Petroleum Refiners Association at the annual meeting of the association held last week in Excelsior Springs, Mo. The new members are U. deB Daly, president of the Shell Petroleum Corp., St. Louis; R. W. McDowell, vice president of the Mid-Continent Petroleum Corp., Tulsa; and H. J. Scott, vice president of the Marathon Oil Co., Tulsa.

Other members of the board whose terms expired, were re-elected. In addition to the foregoing the following are members of the association's board of directors. H. T. Ashton, president, Lubrite Refining Co., St. Louis; C. M. Boggs, president, Kanotex Refining Co., Arkansas City, Kans.; P. M. Martin, vice president, Lion Oil Refining Co., El Dorado, Ark.; Sheldon Clarke, vice president, Sinclair Refining Co., Chicago; A. L. Derby, president, Derby Oil Co., Wichita, Kans.; T. T. Eason, president, Eason Oil Co., Enid, Okla.; John L. Gray, vice president, Deep Rock Oil Corp., Tulsa; D. P. Hamilton, president, Root Refining Co., Shreveport, La.; C. L. Henderson, vice president, Vickers Petroleum Co., Wichita, Kans.; R. R. Irwin, president, White Eagle Oil Corp., Kansas City, Mo.; E. J. Marston, president, Texas Pacific Coal & Oil Co., Fort Worth, Tex.; E. S. Karstedt, vice president, Continental Oil Co., Ponca City, Okla.; F. R. Schneider, vice president, Simms Oil Co., Dallas, Tex.; H. H. Trower, vice president, Phillips Petroleum Co., Bartlesville, Okla.; P. J. Gwynn, vice president, Iowa Park Producing & Refining Co., Wichita Falls, Tex.; and L. H. Prichard, president, Anderson-Prichard Oil Corp., Oklahoma City, Okla.

In addition to the above former presidents of the association are members of the board of directors. This includes Roy B. Jones, president, Panhandle Refining Co., Wichita Falls, Tex.; P. M. Miskell, general manager of the refining and marketing departments, Empire Oil & Refining Co., Tulsa; D. W. Moffitt, director, Mid-Continent Petroleum Corp.; and George Moore, receiver for the Cosden Oil Co., Fort Worth, Tex.

As announced last week, all officers of the association headed by L. R. Crawford, president, Producers & Refiners Corp., were re-elected. Mr. Crawford will serve his second term as president of the association. The vice presidents of the association are George D. Locke, vice president, Barnsdall Refining Co.; M. J. Grogan, president, Louisiana Oil Refining Corp.; and E. D. Eddleman, general manager of the American Refining Properties.

The membership at the Excelsior Springs meeting voted to change the association's by-laws to permit the annual meeting to be held either in March or April. The by-laws in the past have provided that the meeting be held in March. A number of the membership have expressed the desire that the annual meeting next year be held at New Orleans.

It Never Paid to Deceive Dave Stewart

Men Who Tried It Usually Wished They Hadn't, for Veteran Pipeliner Could Be a Bearcat If Sufficiently Aroused

By Thomas F. Smiley

There is an impressive degree of unanimity on one point concerning David C. Stewart, vice president and manager of the Magnolia Pipe Line Co., to-wit, that as a manager of men in the field he was a bearcat. Talk with any of the men who worked with or under him—Tom Moroney, Barney Graham, Ed Leroux, Bill Conry, Jim Dutton, Paul Griffin, John Manion, Hugh McGivern, Hal Moore, Si Ford, Guy Wolford, Jim Blake and the rest—every mother's son of whom would challenge instantly any aspersion directed at the veteran pipeliner, and they all will say, with only slight variation in phrasing and no variation at all in the reminiscent chuckle, "Dave sure was a bearcat."

And there would be no sense in excluding from the designation any of its usual implications. Dave Stewart never was easy with himself. He could see no reason for being easy with others. When there was work to be done Dave addressed himself to it with the timorous reluctance of a mogul locomotive under a full head of steam. And he had the mogul's gentle deference toward obstructions in his path.

Dave Stewart always detested a shirker. And jumping wildcats, how he hates a liar!

In a world constituted like this one, where laziness and deceit are among the commonest of human attributes, it is easy to see how Dave's advent as boss over a heterogeneous, hired-as-they-happened-to-come gang of pipe line workmen would be accompanied by the soothing hush of a red-hot drilling-bit thrust into a tub of ice-water.

Born Near Drake Well

Mr. Stewart was born in 1864 in Franklin, Pa., about 20 miles from the Drake discovery well near Titusville. It was in Franklin that James Evans, a blacksmith, who made his own tools and used an artesian water well as the top of his hole, drilled a 75-foot well a few weeks after the Drake well was completed. The Evans well started off at 25 bbls. a day and marked the beginning of oil operations around Franklin. Mr. Stewart's father, R. R. Stewart, was an oil-field worker and the migrations of the family as the fortunes of one field waned and those of another rose took the Stewarts to Parkers Landing, Petrolia, Karns City and other towns which had their day in the early annals of petroleum. In Karns City young Dave began to feel that he was earning real money, drawing down as he did $1 a day for his services in a general store, said services consisting of sweeping the floor, emptying the sawdust boxes and renewing them for the day's volleys of tobacco juice, cleaning and trimming the kerosene lamps, delivering goods and performing sundry other jobs that kept time from hanging heavily on his hands throughout the 15 or so hours that constituted a day's work.

Dave was 18 when, in 1882, the family moved to Clarendon, Warren County, where the famous "Mystery" well drilled by Grace & Dimick on Lot 646 in Cherry Grove Township, had become the center of oil excitement, starting a new white sand development which within four months was yielding 40,000 bbls. a day, a staggering production record for that period.

Old-timers of the Pennsylvania oil region still talk about the Grace & Dimick "Mystery," which it was recognized would determine the fate of a large area lying to the southwest of the Clarendon Pool. Before the outcome of the test was known by the public it was shut down and boarded up and a guard was thrown out.

Intruders were warned away with shotguns. On May 18, 1882, the well, which had been deepened, began flowing steadily and in the first 24 hours it produced more than 1,000 bbls. of oil, causing a break of 4 cents a barrel in the market. In late June the flow had increased to 1,200 bbls. Then came a startling drop. By November the output had fallen to five-eighths of a barrel a day, and this was typical of the decline in other wells of the field.

At 20 Dave was working as a connection man in a pipe-line gang for the United Pipe Line Co., a division of the National Transit Co., in the Clarendon district. He continued as a connection man in Warren and Forest Counties, Pennsylvania, for three years, after which he was employed as a gauger by the same company. In 1893 he went to Sistersville, W. Va., where he served as a gauger for the Eureka Pipe Line Co. and the Buckeye Pipe Line Co., Standard Oil Co. subsidiaries, which had joint offices in Sistersville. In 1896 he was made a district foreman for the Buckeye, this promotion marking the beginning of what was to prove steady advancement in the pipe line field.

The year 1900 saw Mr. Stewart in Marietta, Ohio, serving as assistant superintendent of the Macksburg division of the Buckeye. In 1902 he supervised the construction by the Cumberland Pipe Line Co. (Standard subsidiary) of a line from Somerset, Ky., to the West Virginia line, where it joined the Eureka, the Standard's pipe line system in West Virginia. The next year he was sent west to build for the Prairie Oil & Gas Co., then a Standard subsidiary, the first line from Humboldt, Kans., to Kansas City, Mo. He then helped in overseeing construction of the Prairie's line from Kansas City to Chicago. In December, 1904, Mr. Stewart was made assistant general superintendent of the Prairie and in this position he directed all the company's pipe-line work in Oklahoma and Kansas.

Mr. Stewart by this time had become one of the best-known figures in the pipeline branch of the petroleum industry, and other men who also were to become well known were his associates in one relationship or another. Edward H. Leroux, president of the Oklahoma Pipe Line Co., got his first pipe-line job as a pump-station telegraph operator under Mr. Stewart at Neodesha, Kans., in 1905. John Manion, president of the Sinclair Pipe Line Co., was a district foreman under him in this period. Names of men now holding important positions in the pipe-line world who once worked with or under David C. Stewart make up a roster that is fairly symbolic of the progress recorded in the pipe-line field in the last half-century.

It was in the early development of pipe-line work in West Virginia and Mid-Continent areas that Mr. Stewart acquired the "bearcat" reputation which already has become legendary. Hard, perverse conditions called for leadership in which ingenuity, resourcefulness and initiative had to be combined with unmanicured forcefulness and pluck. Dave Stewart had them all, with a sense of fairness that insured a square deal, even though justice sometimes was mixed with dynamite and vitriol.

Weren't Running a Rest Cure

The man who tried to cheat Dave Stewart invited almost certain trouble, for not only did Dave have an uncanny faculty for piercing sham and trickery, but the goddess of good luck, if there be such a deity, seemed to travel at his side. Take the case of "Red," a straw boss employed in construction of the Prairie's line from Bartlesville, Okla., to Caney, Kans. Everything looking propitious, Red one warm afternoon stretched himself in a shaded spot near where the gang was working and was taking a comfortable nap when a Santa Fe train passed. Dave was on the train and his vigilant eye did not fail to note the snoozing straw boss. The next payday Red discovered he was short one day's pay and he went to Dave to tell him about the error.

"That's on account of your absence last Thursday," said Dave.

"Last Thursday? Why, there's a mistake somewhere. I was on the job all day."

Dave transfixed him and—

"There's no mistake and you're a damned liar. You were asleep. I saw you. We're building a pipe line. We're not running a rest cure."

Dave's look indicated that he might say something real sharp if only slightly encouraged, but Red was satisfied.

Men who worked with Mr. Stewart in the old days agree that even when he himself had been unsparing in castigating a bungling workman he was likely to resent any disparagement of the same workman by somebody else. It is told of him that one day after he had given a delinquent employe a finished trimming another man remarked to him, "Well, I heard you gave that saphead what was coming to him."

"Oh, you did, huh?" bridled Dave. "Well, it'll be time for you to call him a saphead when you're as good a man as he is. If anybody needs to be called a saphead around here I'll do it myself."

Never Liked a Yes Man

Mr. Stewart disliked a yes man, still does, and more than once when he had received as good as he sent in a verbal set-to onlookers saw him walk away with a grin on his face.

"When I was a connection foreman under Dave and used to go to his office to thresh out matters relating to the work we'd sometimes have almost a knockdown and dragout time of it," said B. R. Graham, now manager of the Cosden Pipe Line Co. and one of Mr. Stewart's warmest friends. "He'd tell me I was dead wrong and he wasn't a bit choice about how he said it either. I'd come right back at him, sometimes using words that aren't in the dictionary. If I was in the right I could depend on Dave seeing it. If he proved I was wrong there was nothing to do but admit it. And with that it was settled. There never was any rancor or vindictiveness. There isn't a trace of meanness in Dave Stewart's makeup.

"One day Dave and I had an exchange of words while I was working on the Prairie's tank farm near Ramona, Okla. He was still a little hot under the collar when he left me and he gave me a parting shot as he rode off with E. E. Le Mas-

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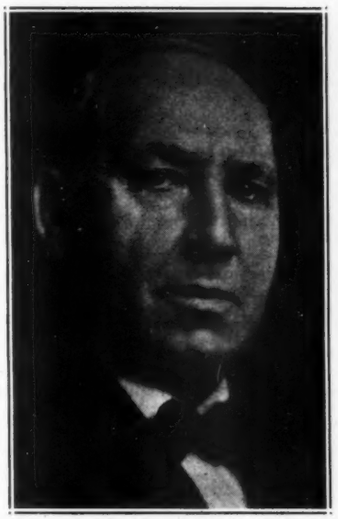
WHAT IF 1885 COULD HAVE FORESEEN 1931!

Nobody would have been more amused than David C. Stewart himself at any prediction back in the early eighties that 1931 would see surveys for pipe lines being made from ships sailing in the air; would see oil-carrying pipe line systems spreading, like huge veins, from oil fields then undiscovered, to refining and consuming centers hundreds of miles distant; would see more than 5,000 miles of natural gas lines already constructed and projects under way or in contemplation that would more than double this mileage; would see big pipe lines for transportation of gasoline to chains of cities from which it would be distributed in powerful trucks moved, not by horses, but by engines using this same gasoline as fuel.



David C. Stewart

Gasoline? From the viewpoint of 1885 why should a man want to transport gasoline anyway—in pipes, barrels, buckets, tin cups or anything else? Of what use was it? But oil—that was different. The world wanted kerosene, which had taken the place of candles and whale oil as an illuminant.

Transportation early presented distracting problems. Producers in fields east of the Mississippi River fought for outlets to the Great Lakes and seaboard. Out of the perplexities and necessities of the time grew pipe line projects that proved forerunners of the gigantic oil, gas and gasoline-carrying systems which later years developed.

The problems that harried the early pipe line builder were not technical ones of fluid flow and friction or of axial temperature stress. They were the rougher problems of the pioneer who must accomplish big tasks with such men, methods and machinery as happen to be available. They were problems for the strong, the resourceful and the stout of heart.

Compulsory Unit Operation of Pools

Right to Regulate Development for the Better and More Economical Operation Upheld by Law and Ancient Principle

By W. P. Z. German
General Attorney, Skelly Oil Co., Tulsa, Okla.*

The term "unit operation" may have at least two meanings, one being the merging of titles and the development and operation of the unitized area, as if it were one tract of land held under a single oil and gas lease, according to a definite program intended to accomplish a maximum recovery from the pool as a whole at a minimum cost. It is incomplete when the royalty owners do not also merge their titles. The other is not accompanied by any merger of titles, but the development and operation of the area is in accordance, as nearly as reasonably practicable, with such a program. If there cannot be unit operation without a merger of titles, then it would seem that the State cannot require unit operation for it cannot require a merging of titles; but if it may consist in requiring each and all of the leaseholders to develop and operate or to submit to a development and operation according to some such common plan as is referred to above without at the same time requiring a merger of titles, then it would seem that unit operation may be required by the state. If the state can so bind the several lessees, it also can so bind the several lessors.

An ideal plan for the development and operation of a pool when oil recovery is the objective takes into account, among other things, the fact that the oil and gas are held under pressure, and that the most efficient utilization of this pressure in the recovery of the oil requires that there be no operation of wells completed in areas where gas only has accumulated, for this diminishes the pressure, withdraws gas which could migrate to oil-bearing areas, and draws gas out of solution with oil, all to the detriment of oil recovery; and that there shall be only an operation of wells which are completed into oil-saturated areas. The gas would be thus recovered along with the recovery of the oil, and at the same time there is a most beneficial use of the rock pressure. The superiority of unit operation over proration as we know it today is obvious. Among other differences, proration ignores an orderly development of a field, whereas, unit operation recognizes and enforces it.

State's Police Power

The authority of a state to intervene and correct evils of the type we are considering is called its "police power." This power of a state is vested in its legislature, and is to be manifested by the enactment of laws. It has been said that all police power rests upon the common law maxim that every person shall be required so to use his property as not to injure the rights of others. This includes injury to one's neighbors as well as the general public.

There are at least four conditions which might well justify an exercise of the police power of the state, if the power extends that far, to enforce the unit operation of oil fields, whenever it cannot be had by agreement. These are:

First: The existence in oil fields of so many separate individual holdings, in small tracts of land;

Second: The migratory nature of oil and gas deposits, and the presence of pressure with them in the reservoir beneath; the tremendous value of this pressure, whenever it is placed under proper control, in the recovery of the oil and the inestimable harm that can grow out of its wastage;

Third: The desire of the individual lessees to obtain through wells on his lease and to keep all that he can get of the oil and gas beneath, when and as fast as he may choose, without regard to the situation of his neighbors, and without regard to market conditions; which, less politely stated, may be termed human greed; and

Fourth: Distrust.

An ordinary conception of right and wrong would satisfy everyone that each land proprietor in a pool is entitled to a fair proportionate part, and no more, of

(Continued on Page 128)

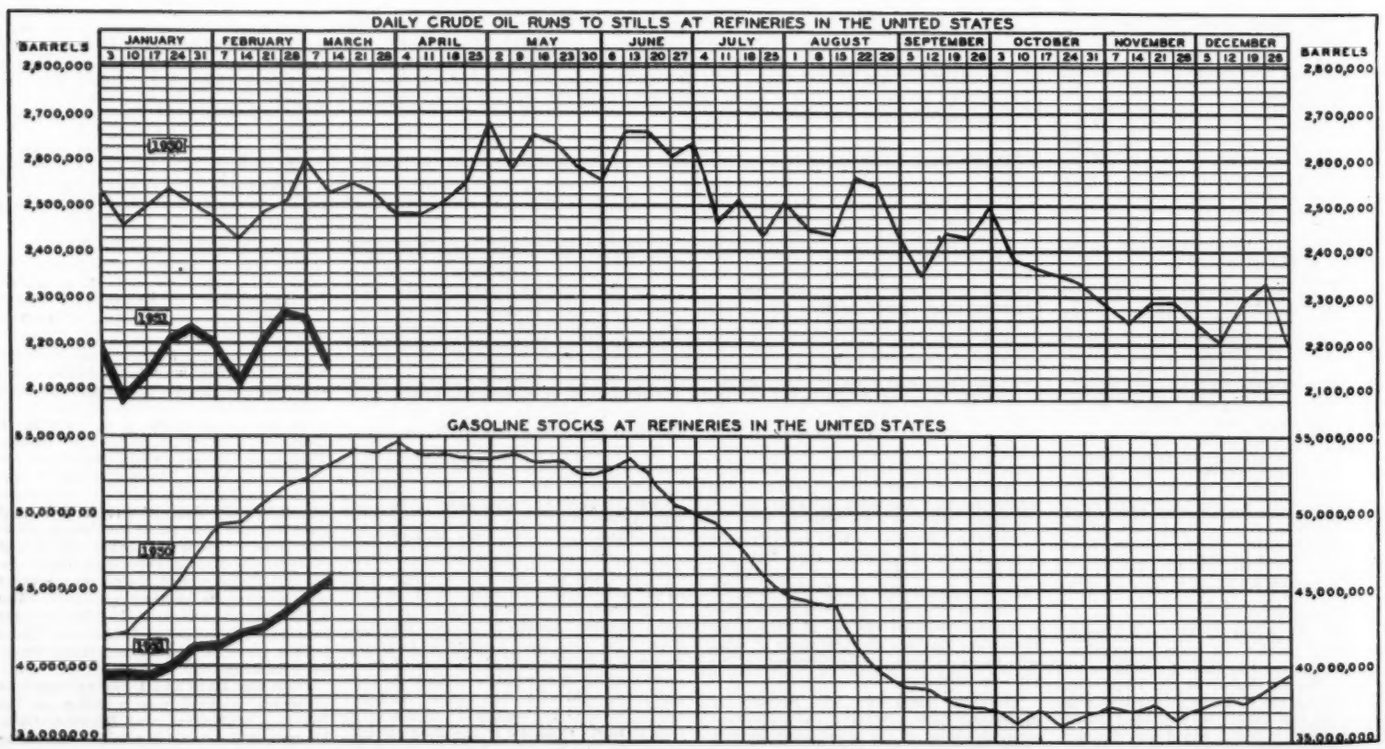
*An abridgment of a paper on the above subject which was presented before the Petroleum Division of the American Institute of Mining and Metallurgical Engineers, New York. Some points and much of the argument are not shown here. Printed copies of the paper in full will soon be available at the offices of the institute, 29 West Thirty-ninth Street, New York.

AMERICAN PETROLEUM INSTITUTE WEEKLY REFINERY STATISTICS

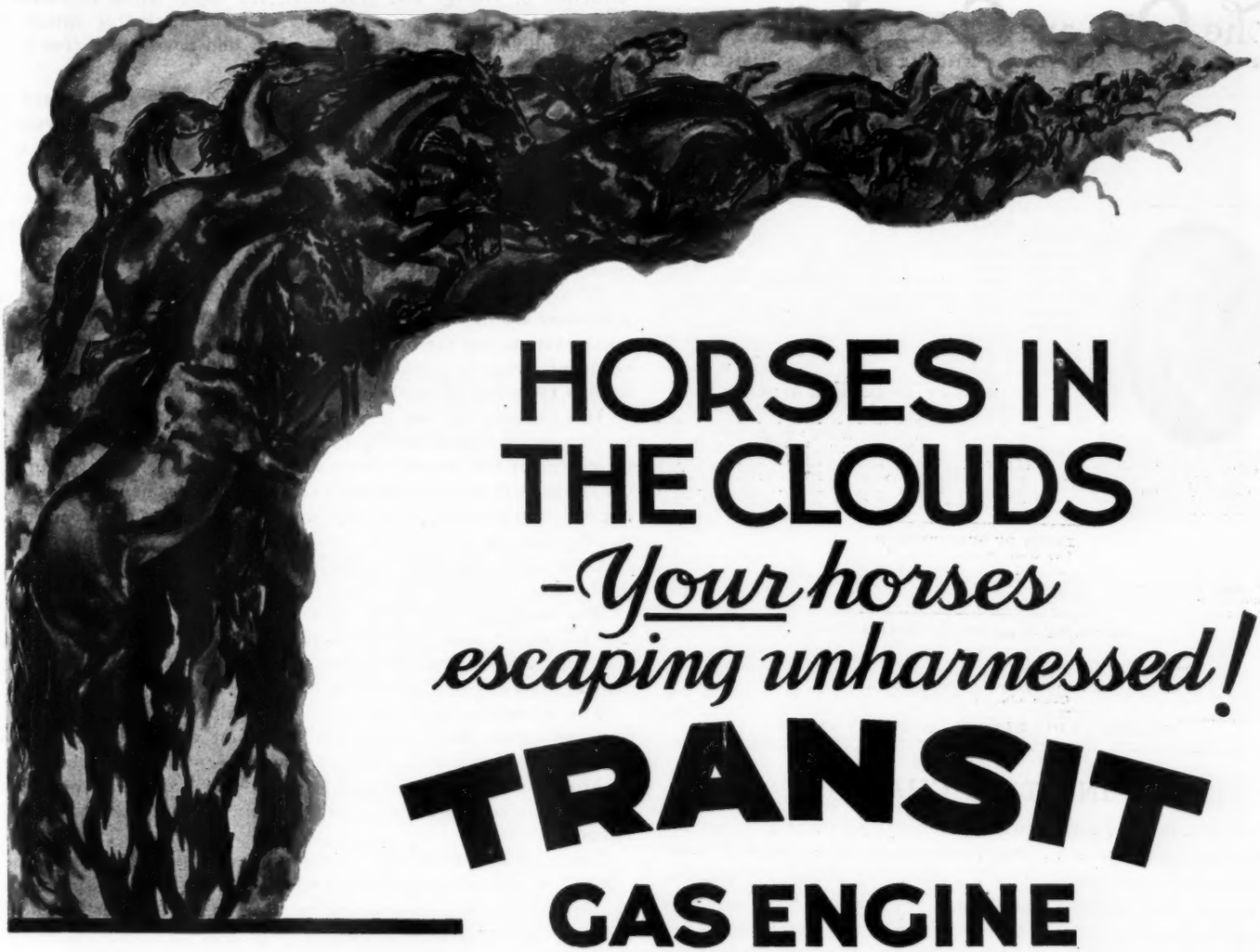
The weekly report made to the American Petroleum Institute on refinery statistics—crude runs to still, gasoline stocks and gas and fuel oil stocks in barrels—for the week ending March 14:

	Week ending March 14				Week ending March 7				Week ending March 15, 1930			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
East Coast	100.0	497,600	8,399,000	7,390,000	100.0	452,600	8,180,000	7,085,000	100.0	3,322,700	8,985,000	6,457,000
Appalachian	93.8	81,700	1,590,000	1,102,000	93.8	92,700	1,512,000	1,052,000	91.0	534,800	1,850,000	666,000
Indiana, Illinois, Kentucky	97.5	287,400	5,421,000	3,039,000	97.5	270,600	5,169,000	3,057,000	98.6	2,049,800	8,056,000	2,959,000
Oklahoma, Kansas, Missouri	89.4	248,400	3,346,000	3,734,000	89.4	221,000	3,236,000	3,777,000	89.1	2,077,700	4,645,000	3,393,000
Texas	91.9	555,700	7,535,000	7,980,000	91.9	544,800	7,920,000	8,319,000	90.4	4,153,100	8,408,000	11,816,000
Louisiana and Arkansas	98.3	140,700	2,029,000	2,319,000	98.3	139,700	1,907,000	2,263,000	96.8	1,326,900	2,563,000	2,166,000
Rocky Mountain	93.1	43,900	1,860,000	852,000	93.1	37,600	1,840,000	851,000	93.6	442,100	2,945,000	1,052,000
California	98.3	459,000	15,641,000	100,942,000	98.8	413,100	16,025,000	100,924,000	99.3	3,971,200	16,534,000	108,625,000
Total United States	95.7	2,314,400	45,821,000	127,358,000	95.7	2,172,100	45,789,000	127,428,000	95.5	17,878,300	53,986,000	137,134,000
Texas Gulf Coast	100.0	426,400	6,292,000	5,742,000	100.0	438,600	6,670,000	5,930,000	99.4	3,235,400	7,311,000	9,173,000
Louisiana Gulf Coast	100.0	93,600	1,820,000	1,236,000	100.0	94,400	1,684,000	1,308,000	100.0	860,400	2,222,000	1,335,000

(1) Per cent of refinery capacity represented. (2) Daily crude runs to stills. (3) Gasoline stocks. (4) Gas and fuel oil stocks.



*Data for 1930 based on weekly reports of the American Petroleum Institute. Data for 1929 derived from monthly reports of the Bureau of Mines, Department of Commerce. Figures for last week not shown in graph but are included in above tables.



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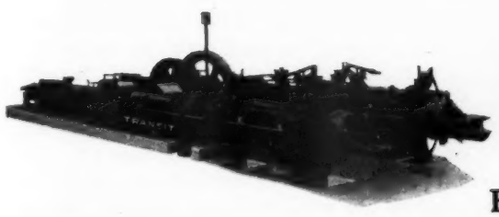

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INVITING CHAOS

The bills in the Texas legislature to limit pipe line earnings and to divorce filling stations from oil companies are a sample of what the oil industry can expect when it carries its troubles into politics.

However unreasonable and absurd they appear to oil men they are a product of the times. During the period of general prosperity lawmakers in the States and at Washington were content to go with the tide, radicalism and business-baiting were left to the Ishmaels of public life.

But with the passing of the "get-rich-quick" era and the coming of universal difficulties everybody became critical and there arose the familiar clamor that "there ought to be a law".

In every depression there is a tendency to turn to the Government for relief, if not in actual doles, then in fanciful efforts to secure a new deal for the losers.

The political ear is alert to these symptoms in the body politic and immediately the public was promised all sorts of reforms and remedies and in many cases hopefully believed them.

The wave of radical legislation that is now sweeping the country is the result.

Just how any sensible person can imagine that the way to help business struggling back to its feet is to hamstring it with restricting legislation is difficult to understand.

Texas, like Oklahoma, is indebted to the prosperity of the oil industry for much of its development and for the major part of its revenue. It might be supposed that legislation there would be designed to help rather than hurt this sustaining industry.

Take this pipe line bill into consideration. It proposes to limit a "fair return" on pipe lines to "not less than 6 per cent and not more than 10 per cent."

Now, in the first place, as any oil man ought to know from experience, the oil industry's investments and earnings are not in any way comparable to those of less hazardous undertakings.

It was calculated a few years ago that of the $12,000,000,000 sunk in the oil business only $7,500,000,000 had been recovered, an extraordinary percentage of loss, accounted for by the risks incident to the finding and production of oil, the depletion of wells, the construction of storage and pipe lines, the depreciation of refinery equipment, and the unconscionable costs of marketing which include a universal accessibility of supply and a wealth of free services furnished by no other business.

In the matter of pipe lines a company assumes a great hazard by investing a large sum in building trunk lines and gathering systems into a new territory without any assurance of whether the field will last or will not.

Not only that, but the flush period of any field is comparatively short, yet it is the flush run which must bear the brunt of the pipe line project. That is the period in which the company can hope to have the line contribute to its initial cost.

If a pipe line company was not permitted to make above the maximum set in this bill during flush production it might never break even during the life of the field or manage to pay off the investment owing to possible failure of the field or to low pipe line returns from settled production.

If a company can not pay off all, or a large part of the original investment by returns during a certain period to enable the company to operate at the comparatively small profit it will receive during the settled life of the field there can be no inducement for the laying of new lines except as they serve the production of companies putting them in.

Only companies which must have pipe lines to serve their own production will build new lines.

The resulting inadequate pipe line outlet for any field, which this bill would necessitate or result in, will react on the individual producer to the extent that he will get far less for his oil than he does at present and thus will be in worse financial position.

The accumulation of oil in a new field due to lack of pipe line connections will force prices to a point where no one will be able to operate and the independent producer will pay the bill.

Anyone can see that imposing a limit to the returns a pipe line company can receive on its investment is going to restrict pipe line expansion.

The other bill, called the oil divorcement measure or disintegration bill, would prohibit any producing, refining and transportation company from engaging in the retailing of petroleum products, allowing the companies one year to dispose of their retail interests. interests.

This is a flat flying in the face of the whole trend of business in the present age. It is a futile effort to turn back the hands of the clock, as impossible as to restore the days of the peddler's pack in this age of national distribution by integrated merchandisers.

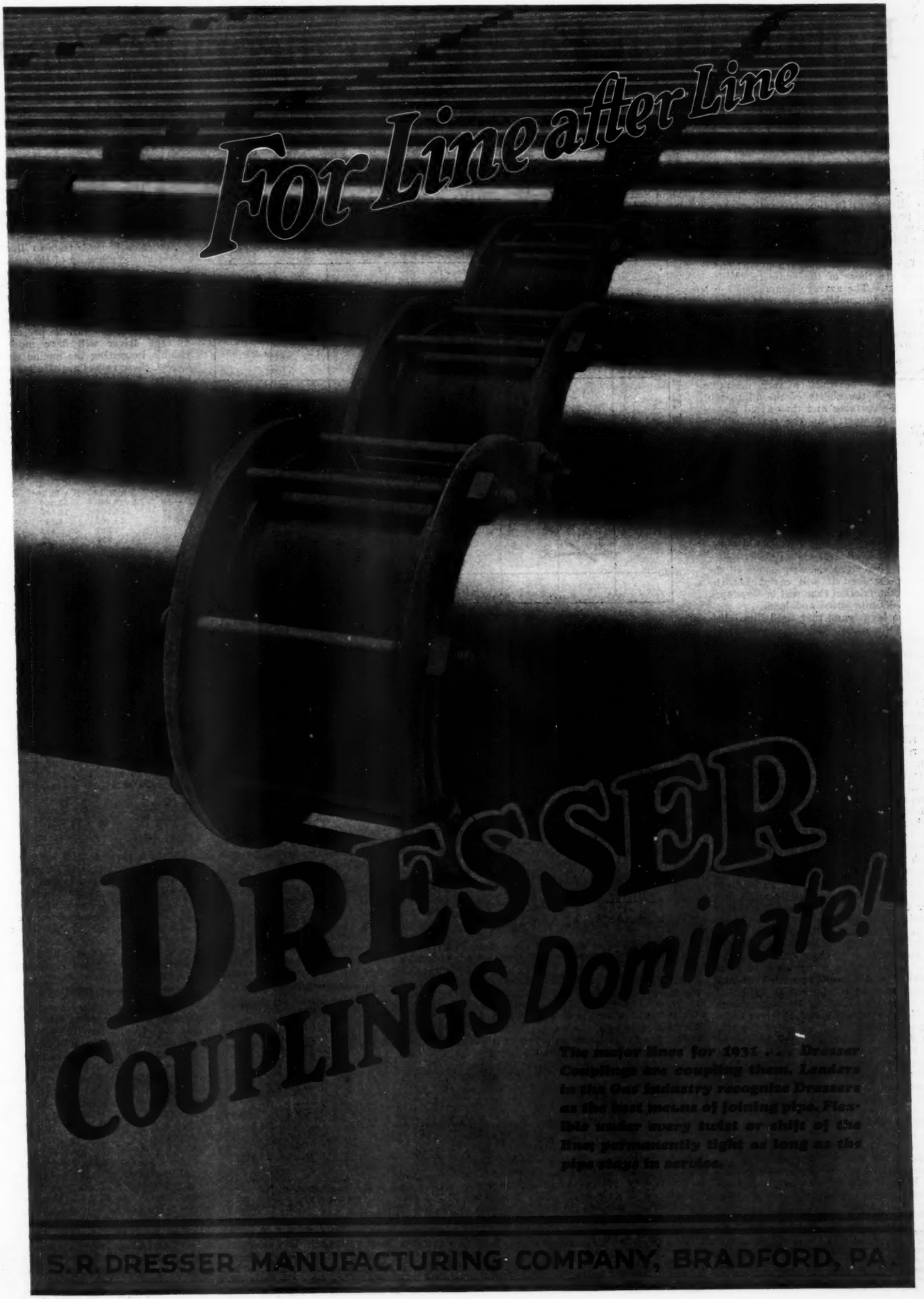
There is not the slightest chance that gasoline consumers throughout the rest of the country would countenance this Texas proposition even were it made effective in the Lone Star state. They value too highly the security and services which they now enjoy at the filling stations to attempt to drive the most acceptable outlets out of business.

The oil industry itself, painfully conscious of the disastrous consequences to both producers and refiners from unethical marketing practices with resulting breaking of the market for both refined and crude, may well wish to be saved from any such marketing chaos as would inevitably follow the carrying into effect of such a law.

These bills are but symptoms of the feverish condition of the times. They would never have been proposed in a saner and healthier public mind. The danger is that they may be attempted with irreparable damage to the industry and to the true interests of the public.

The question of rates cannot be an issue because there is already provision for regulation of rates by the Railroad Commission which affords ample protection on that point. In view of that fact it is difficult to understand the object of this bill except that, as apparent, it is the effect of the hysteria of the moment.

Such legislative remedies for conditions in the oil industry are wide of the mark because they overlook the basic trouble—which is overproduction of crude oil and refined products in excess of the demand for them. No act of legislature can solve that problem while the industry itself continues to defy the simple law of supply and demand.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Lubrication From Engineering View

Viscosity Not an Index of Oil Consumption. Small Amount of Dilution Aids Starting of Cold Motor

By H. C. Mougey
General Motors Corp.*

From the standpoint of the automobile engineer it is desirable that the automobile should be as insensitive as possible to differences in the physical or chemical properties of the lubricants and viewed from this angle, universal distribution of the lubricants is the most important factor to be considered.

The factors which are next in importance are those of the quantity required and cost. The average amount of lubricant per automobile per year is probably 20 gallons. With 26,000,000 automobiles in the United States, this requires about 1,500,000,000 gallons of lubricant per year.

This brings us to the next important property. Since lubricating oils are used to lubricate bearings, a very desirable property is the ability of the oil to separate the surfaces and thus avoid metal-to-metal contact. As the result of the work of a number of investigators[1] it has been found that the coefficient of friction, for fluid film lubrication, is proportional to $\frac{Zn}{P}$, where Z is the absolute viscosity of the oil, n is the speed of rotation, and P is the load in pounds per square inch of projected area. In other words, for fluid film lubrication, the load-carrying ability of an oil depends on its viscosity and the higher the viscosity of an oil the greater the load it will carry, but the greater the friction that will be developed at any definite speed and load.

It has been found that fluid film lubrication fails when either or both the viscosity of the oil or the speed are too low or when the load is too high. There is some question as to how low viscosity can be before a lubricant is too thin for use in an automobile engine.

In most cases the factor which determines the minimum oil viscosity is oil consumption. The chart (Figure 1) shows the results of a series of tests to study the relation of viscosity to oil consumption. In this test, which was made on an engine operated at 45 miles per hour, it will be noted that the miles per gallon increased as the viscosity of the oil increased, up to a certain limit, and then further increases in oil viscosity resulted in a decrease in the miles per gallon. We believe that this is due to two causes which oppositely affect oil consumption. Increasing the viscosity decreases the amount of oil that leaks past the bearings and is thrown on the cylinder walls, but after a certain value is reached, a higher viscosity decreases the ability of the oil to drain from the cylinder walls or to escape through the holes in the oil control rings. Both of these effects are discussed by Round in a paper on Oil Consumption which was presented at the summer meeting of the S.A.E. in 1922.[2] This critical or limiting viscosity varies with different engines and different operating conditions.

In Figure 1 it will be noted that even with the same viscosities, some oils give greater miles per gallon than others. This difference is due to volatility. This effect of volatility is well known. It is mentioned in the paper by Round on Oil Consumption. In the 1920 instruction book of one of the large oil companies[3] this effect of volatility is discussed as follows:

"If a lubricating oil contains a large portion of low boiling point constituents, the loss of oil vapors will be proportionately high when it is used in an engine, and vice versa. Some loss will always occur, but the choice of the right oil will reduce such needless waste to a minimum and be a guarantee of a reasonably low specific consumption, good lubrication and practically carbon-free conditions within the explosion chambers. The degree of volatility which lubricating oils should have is entirely determined by the maximum operating temperatures of the engine and by the character of its load, full or variable."

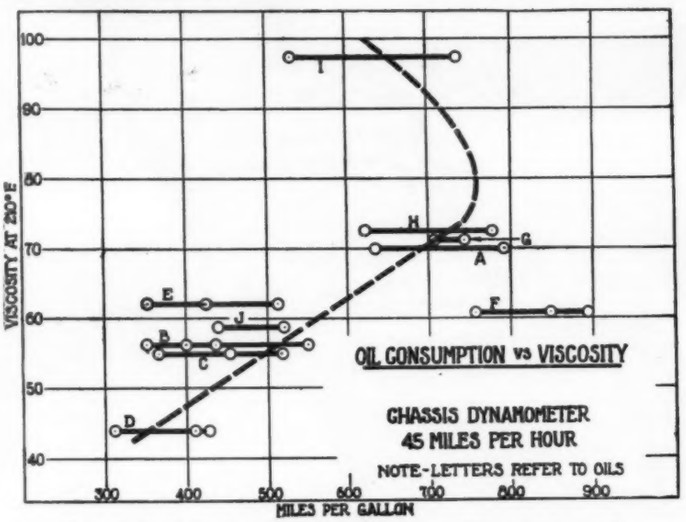

Figure 1—Graph showing rate of oil consumption at different engine speeds.

This importance of operating conditions is one of the reasons why it is difficult or impossible to decide as to the quality of a lubricating oil by its analysis or chemical and physical properties without reference to service conditions. On engines fitted with oil coolers, the maximum operating temperatures are decreased and the effect of volatility is greatly reduced. Engines with oil coolers may give excellent results with certain oils that might be unsatisfactory without oil coolers.

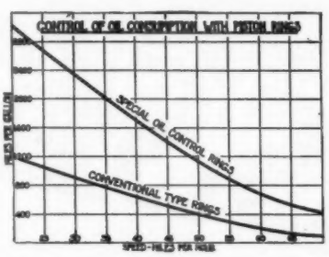

Figure 2—Effect of special oil rings in reducing consumption of lubricants.

Another advantage of decrease of maximum oil temperatures by oil coolers is the higher oil viscosity resulting from cooler oil with a corresponding increase in miles per gallon of oil.

Speed a Major Factor

Oil consumption, however, is affected by other factors besides oil viscosity. The greatest single factor is engine speed. As the speed increases the oil consumption increases very rapidly, and at high speeds, an increase of only a few miles per hour in speed may make a great difference in oil consumption. This is shown by the curve (Figure 2). This curve is taken from a paper by Bramberry[4] on the subject of oil control by piston rings. It illustrates the fundamental difficulty encountered in trying to control oil consumption by means of rings. The control is more or less effective over the entire speed range and too great a decrease of oil consumption at high speeds may lead to insufficient lubrication at low speeds.

We have seen how the minimum oil viscosity is important. The maximum oil viscosity is even more important on account of its effect on starting and lubrication at low temperatures. In the winter, too high oil viscosity will make starting difficult or impossible, and in addition, even if the engine should start, the lubrication might be very poor, resulting in extreme cases, in scored cylinders or burned out bearings. Although much work has been done on this subject and a number of papers have been published in which the different factors were discussed, the general public still seems to have mistaken ideas in regard to cold weather lubrication problems. In all probability this is due to the public placing the wrong interpretation on advertisements for winter lubricants. A small amount of paraffin wax in oil with a corresponding high pour test has little or no effect on the ability of the starter to crank the engine in cold weather Cranking, in so far as the oil is concerned, depends upon the viscosity of the oil at the cranking temperature. The pour test is of great value in determining whether or not the oil will flow to the pump inlet, although it has little or no effect on the flow of the oil under pressure in the lubricating system. The viscosity of the oil at the low temperatures is as important as the pour test in determining the flow of oil to the pump inlet under winter conditions, and the flow of the oil under pressure in the lubricating system depends upon the viscosity of the oil at the temperature in question.

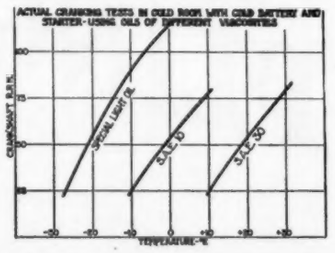
ACTUAL CRANKING TESTS IN COLD ROOM WITH COLD BATTERY AND STARTER-USING OILS OF DIFFERENT VISCOSITIES
CRANKSHAFT R.P.M.
TEMPERATURE °F
SPECIAL LIGHT OIL
S.A.E. 10
S.A.E. 30

Figure 3—Starting tests using three grades of oil with motor maintained at low temperature.

We recently made tests to illustrate the effect of the viscosity of the oil on cranking the engine. Tests have shown that, in general, unless the starter can crank the engine 25 revolutions per minute, starting is difficult or impossible even for an expert, and unless the starter cranks it at least 50 revolutions per minute, the average driver will have more or less trouble in getting the engine started. Of course, these values are affected somewhat by engine design, ignition systems, manifolds, etc., but the values of 25 and 50 r.p.m. may be taken as fair averages. In the tests we are now considering, three typical oils were used. Their viscosities at different temperatures are shown below:

Viscosities of Oils Used in Cold Starting Tests

Temp. °F.	S.A.E. 30	S.A.E. 10*	Special light oil
—20	1,000,000	55,000	6,000
0	150,000	12,000	1,800
+30	18,000	1,800	460
+100	525	155	76
+130	220	84	56
+210	60	43	38

*Note—This oil is somewhat lighter in viscosity than S.A.E. 10 (90-120 at 130° F.). It is referred to as S.A.E. 10 for convenience.

A summer oil (S.A.E. 30), typical of the kind of oil used for average summer driving, was the heaviest oil in this test. A light winter oil (S.A.E. 10) was the next lightest. The third oil was too light to be classified by the S.A.E. system. In Figure 3 are curves showing the cranking speeds obtained with these oils when tested in a popular six-cylinder engine using a fully charged cold battery. Tests in a number of other engines of different kinds also gave values of the same general order as those shown here. It will be noted that the temperatures at which 25 and 50 r.p.m. of the crankshaft were obtained are as follows:

	Temp. for 25 r.p.m.	Temp. for 50 r.p.m.
S.A.E. 30 oil	+10°F.	+18°F.
S.A.E. 10 oil	—10°F.	— 2°F.
Special extra light oil	—27°F.	—22°F.

To check these results we removed the battery and starter and determined with the dynamometer the torque required to crank the engine at 25 and at 50 r.p.m. at the different temperatures with these oils. We then determined the torque that could be developed by the starter and battery at these temperatures and speeds, and we found that our actual cranking tests checked with the values calculated from this torque data.

Some Dilution

We have shown this datum to a number of people but in general their reaction to it is one of unbelief. They say that they have driven cars for a number of years and that they have used commercial oils and cranked engines at temperatures lower than those that appear to be possible from this datum. The explanation is that the viscosity that is most important in these tests is the viscosity of the oil between the pistons and cylinders, and this viscosity is usually greatly reduced by the presence of gasoline in the oil on the cylinder walls. In other words crankcase dilution that we have regarded with such fear and distrust for so many years, turns out to be a blessing in disguise in so far as winter starting is concerned. A dilution of 10 per cent in the case of an oil that is about 300 at 100° F. will just about cut the viscosity in half and a dilution of 20 per cent will reduce it to about one-third its original value. This explains why stopping the engine

(Continued on Page 107)

*Read before the Western Petroleum Refiners Association Convention, Excelsior Springs, Mo., March 10, 11 and 12.

[1]Journal of Industrial and Engineering Chemistry, Vol. 14, page 682, 1922.

[2]Round, Journal of Society of Automotive Engineers, Vol. 10, page 509, 1922.

[3]Tide Water Oil Co.'s Veedol Lubrication Book, page 23, 1920.

[4]Bramberry, "Pistons and Oil Trapping Rings for Maintaining an Oil Seal." Journal of Society of Automotive Engineers, Vol. 23, page 495, 1928.

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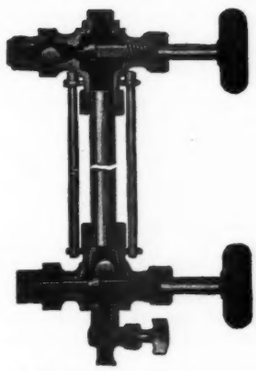

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Measurement Course—Wide interest in coming meeting at Norman, Okla. Page 68.

Oil-Gas Ratio—Better oil-gas ratio saves Kettleman Hills gas. Page 68.

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Tioga Field—Stanley Holman Cathcart, of Pennsylvania Geological Survey, submits report on recently opened field in Tioga County. Page 53.

Oil-Gas Committee Will Give Approval To Okla. Proration

OKLAHOMA CITY, Okla., Mar. 17.—A recommendation that the proration system be retained was contained in a report to be made to the legislature this afternoon by the house oil and gas committee.

The Cham Jones antiproration bill, which would have swept proration laws from the statute books, will be allowed to die in committee, David Logan, Okmulgee County, committee chairman, said.

It is the unanimous opinion of the committee, the report said, that the law requiring ratable taking of oil by purchasers and pipe line companies be retained on the statute books as a protection for the small operators "against those financially able to withdraw oil from their wells."

Late Fields

SOUTHWEST TEXAS

SAN ANTONIO, Tex., Mar. 17.—Duval Oil Corp.'s No. 2 Bishop Cattle Co. in sand at 2,366-2,412 feet is flowing at rate of 1,500 bbls. daily. It is the second oil well in a mile and a half south extension of Schoolfield-O'Bryne Pool in northern Duval County. The oil has been sold on a three-year contract to Crown Central Petroleum Co.

SOUTHWEST TEXAS

SAN ANTONIO, Tex., Mar. 17.—Carsill Oil & Gas Co.'s (subsidiary of Atlantic Lobos Oil Co., of Philadelphia), No. 1 McGill in Jim Wells County on drill stem test in sand at 2,683-89 feet, showed 600 pounds in one minute and is setting casing at 2,680 feet. It opens a new field 25 miles from any production

(Continued on Page 130)

SCORE SHEET ON OIL PRODUCTION

Below is shown allotted average daily production in the United States from October 1, 1930, to April 1, 1931, suggested by the American Petroleum Institute's special committee on the economic situation, and the actual daily average production during the week ending March 14:

	Allotted (bbls.)	Actual (bbls.)	Over (bbls.)	Under (bbls.)
Okla., Kans., S.W. Tex., N. Tex.*	953,700	955,668	1,968	.....
West Texas and S.E. New Mexico	316,300	273,098	.....	43,202
North Louisiana-Arkansas	86,400	88,890	2,490	.....
Gulf Coast	177,800	170,481	.....	7,319
Rocky Mountain	58,600	55,835	.....	2,765
California	530,100	524,500	.....	5,600
Other fields	110,600	109,500	.....	1,100
Total	2,233,500	2,177,972	4,458	59,986

Net average daily underproduction, 55,528 bbls.

*North Texas includes North, Central and East Central Texas and Texas Panhandle.

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Chicago, Illinois

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Owner and Licensor

Potential Tests Keep Up Production

Oklahoma's Output Will Be Above Average Until Tests Are Complete. Western Test Work Is Interesting

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

Oklahoma production shows another increase during the seven days ending March 14 of approximately 8,000 bbls. a day. The daily average for the State for the same seven days was 508,800 bbls. The increase in the State's production was from the Oklahoma City Field and Greater Seminole area.

The Oklahoma City Field averaged 132,760 bbls. a day which is a new peak for the field. Six pools in the Greater Seminole area have been produced wide open during the last 10 days. Potentials were being taken and have been averaging around 118,000 bbls. a day during the period which is considerably more than allowables.

The second group of wells in Greater Seminole were opened up for gauging and new potentials on March 16 and will remain open for 10 days. The pools were East Earlsboro, Sasakwa, Bowlegs, Mission, Little River, East Little River and the settled area in Carr City.

The first group of wells in the Greater Seminole area completed the 10-day gauge of taking new potentials March 15, and it is believed the former method of deducting 3 per cent each month, since the last potential was taken, will be upheld. A comparison of the gauges indicates little difference with the estimated potentials from the actual gauges of the first group of wells.

Wilcox Oil & Gas Co. asked the commission for permission to open its wells in the Wanette Pool to full capacity. The company claims a demand for the full production from the field. The hearing was set for March 25.

The potential production for the month of March, in the Greater Seminole area, is based on a 3 per cent decline curve according to the report of Umpire Ray M. Collins. During the last few months there has been a decided reduction in the drilling operations in the Greater Seminole area and the potentials have also declined. Considerable more drilling is expected to be started when the conditions in the oil industry return to normal. Included in the report are the potentials for the Tatums Pool, in southern Oklahoma, for the month of March.

Crude Oil Withdrawal

During the week ending March 2, the companies with storage in the Greater Seminole area continued to withdraw crude oil, the daily average being 15,972 bbls. for the same seven days. A total of 24,179 bbls. was drawn from storage and 8,207 bbls. of oil was put into storage.

In Older Areas

In the older producing areas in the State activity is continuing at the usual rate. In Lincoln County the wildcat test of Mote and others' No. 1 Stafford, NW cor. NE, Section 32-17-4, was drilling deeper at 3,700 feet, in lime.

The West Chandler district is expected to get an extensive development during the coming months. Five new tests were drilling as the result of the recent completion by Tom Slick Oil Co.'s No. 1 Althoff, NE cor. NW, Section 18-14-4, which made 1,842 bbls. of oil in 24 hours from the Simpson sand at a total depth of 4,897 feet. The well extended production a half mile south, and additional tests may be started by other operators later, as they are not rushing to start new tests until summer. The new tests in the area are expected to link the extension well with the other producing wells in the pool, in a north and south trend.

Companies with leases which expire in the summer are Empire Oil & Refining Co. which has the E half SE, Section 12-14-3, and Prairie Oil & Gas Co. with the NE, Section 12-14-3. It is expected both the companies will drill test wells before the expiration of the leases. The extension well is shut in for proration and pipe line connection. After being produced it may be drilled deeper to test the Wilcox sand horizon.

The tests now drilling are Coline Oil Co.'s No. 2 Telford, SW cor. NW SE, Section 7-14-4, drilling at 2,780 feet; Magnolia Petroleum Co.'s No. 1 Telford, SW cor. SE, Section 7-14-4, drilling at 2,650 feet; same company's No. 2 Telford, NW cor. SW SE, Section 7-14-4, drilling at 3,150 feet; Tom Slick Oil Co.'s No. 1 Kentzelman, SE cor. SW, Section 7-14-4, drilling at 3,050 feet; Magnolia Petroleum Co.'s No. 1 Wagner, NW cor. NE, Section 18-14-4, was drilling at 4,000 feet.

Tom Slick Oil Co. and Stanolind Oil & Gas Co.'s No. 3 Kentzelman, NE cor. SE SW, Section 7-14-4, is a new location announced during the week.

Blocking in Caddo County

In southern Oklahoma the second block of leases in Caddo County was completed by the Indian Territory Illuminating Oil Co. making the company the second largest holder of acreage in the area. The Carter Oil Co. completed a block of approximately 5,500 acres in Townships 6-10w and 5-10w. The Indian Territory Illuminating Oil Co.'s block is in Townships 5-10w and 6-10w, with approximately 3,500 acres. In addition to these companies, others represented with acreage in the area, include Sinclair Oil & Gas Co., Darby Petroleum Co., Mid-Kansas Oil & Gas Co., Ramsey Petroleum Co., Stanolind Oil & Gas Co., and Phillips Petroleum Co.

A Unitized Development

The allowable daily average production from the Reiter-Foster Pool, in western Payne County, was announced during the week. The development of the pool was unitized and only part of the proven area has been drilled.

In Noble County

Prairie Oil & Gas Co.'s No. 1 Upperman, SW cor. NW Section 22-22-1, near Otoe Switch, in Noble County, may be abandoned at a total depth of 4,673 feet, where a hole full of water was found in what is believed to be the Wilcox sand. The test had Simpson sand at 4,656 feet, and also found water after drilling 6 feet into the sand. The test had a showing of oil in the Bartlesville sand and it may be plugged back and tested. Same company's No. 1 Green, SE cor. NE NW Section 22-22-1, was drilling at 3,600 feet. The Bartlesville sand was expected in a few feet. Magnolia Petroleum Co.'s No. 2 Young, NW cor. SW NW Section 22-21-2w, in the Magnolia Pool, was waiting for cement to set after plugging back the second time in attempting to straighten a crooked hole. In the same pool, Magnolia Petroleum Co.'s No. 1 Roberts, SE cor, NE SE Section 21-21-2w, was drilling at 4,000 feet.

In the Waltermire gas pool, Sinclair Oil & Gas Co.'s No. 2 Waltermire, SE cor. SW SE Section 33-21-1w, has spudded and shut down.

Geological parties are still at work in the area west of Perry along the boundary of Noble and Garfield Counties and leasing is still in progress in both counties. L. H. Wentz has recently taken the W NE Section 22-22-2w, and Magnolia Petroleum Co. has leased the SW NW Section 1-20-1, both in Noble County.

Leasing in Logan County

In Logan County considerable switching of leases is underway; some of the companies are surrendering leases while other companies are buying leases. Some of the companies surrendering leases are Tom Slick Oil Co., Reiter-Foster Oil Corp., Continental Oil Co. and Sinclair Oil & Gas Co. The Petroleum Co. has leased the SE of Section 13-18-2w, Logan County.

In Southern Fields

In Stephens County, southern Oklahoma, three active operations were reported, two had showings of oil and the other was being put to pumping. Crane and Rankin's No. 1 Adkins, NE cor. SE, Section 14-1-9w, a wildcat north of the Oil City Field, had a showing of oil at 2,980-91 feet, and was drilling deeper at 3,095 feet. A showing of gas was also found at 2,880-2,925 feet.

G. Pace's No. 7 Bush, NW cor. NE SE, Section 3-2s-8w, on the southeast edge of the Empire Field, has cemented casing to test a showing of oil found in sand at 1,593-1,637 feet. Same operator's No. 6 Bush, SW cor. SE NE NW, Section 3-2s-8w, was put to pumping, making 15 bbls. of oil from sand at 1,637-51 feet. Same operator's No. 10 McMasters, NW cor. SW NE NE, Section 13-2s-8w, which was a location has been abandoned.

L. Morrison's No. 2 Hightower, SW cor. NE, Section 15-3s-5w, an old well, is being drilled deeper at 800 feet.

Junior Oil Co.'s No. 1 Thompson, NE cor. SW SE, Section 1-1-7w, a wildcat, is being plugged and abandoned at 3,329 feet. Three other wildcat tests were shut down. P. Turner's No. 1 Andrews, NW cor. SW SW, Section 5-2s-7w, was shut down at 1,827 feet. Obermeyer's No. 1 Skelton, NE cor. SW SW, Section 32-1s-7w, is shut down at 1,375 feet. R. Southard's No. 1 McKinney, NE cor., Section 25-1-8w, was shut down at 1,063 feet.

In Comanche County, M. Pray and others' No. 1 Cline, NE cor., Section 8-3-10w, a wildcat near the Fort Sill military reservation, is shut down at 2,228 feet. A twin test is being drilled to furnish fuel to continue the drilling operations at the No. 1 Cline. Ashcraft and Noble's No. 3 Noble, C NE NW, Section 28-2-10w, had sand at 435-56 feet, and flowed 4 bbls.

Gilbert and Lowery's No. 1 Forney, C SE SE, Section 4-2s-11w, a wildcat in Cotton County, was drilling below 2,100 feet on the last report.

D. H. Curry and others' No. 1 Ward, NW cor. SW SE, Section 15-5s-6, a wildcat northeast of the Madill Field, was drilling at 1,615 feet. Magnolia Petroleum Co.'s No. 3 Coatsworth, NW cor. SE SE SE, Section 30-5s-6, in the southeast of the Madill Field, is being completed and is estimated at 20 bbls. a day from the pay horizon at 605-58 feet.

O. Reynolds' No. 1 Rice, SW cor. SE SE SE, Section 36-5s-5, southeast of production, found a showing of gas at 147-49 feet and was drilling deeper at 250 feet.

In Tatums Pool

One new location was reported in the Tatums Pool, Carter County, during the week and a test on the northeast edge of production was nearing the pay horizon. Amos Drilling Co.'s No. 2 Hooks, SW cor. SE SE, Section 13-1s-3w, has cemented casing at 2,005 feet on top of a showing of oil found from 2,005-99 feet. It will be tested for production during the week.

Carter Oil Co.'s No. 1 Robb, NW cor. SW NW, Section 10-1s-3w, was rigging up rotary tools and was expected to spud in a few days. The test is on the east edge of production.

Magnolia Petroleum Co.'s No. 1 McCrory, SE cor., Section 10-1s-3w, a semi-wildcat three-quarters of a mile northwest of production, was at 4,065 feet and is the deepest test in the area. Same

(Continued on Page 105)

WILDCAT OPERATIONS IN OKLAHOMA

(Descriptions are East and North unless marked otherwise)

NORTHERN OKLAHOMA

ALFALFA COUNTY

Company, farm and location—	Remarks:
Smith Brothers' No. 1 Forbes, SE cor. NW NW Sec. 13-27-11w	Shut down 1,332 ft.
J. W. Bailey's No. 1 Acre, SW cor. NE Sec. 14-34-11w	Drlg. 5,310 ft.

BECKHAM COUNTY

Price-McFann's No. 1 Webster, C SW SW Sec. 34-8-26w	Drlg. 1,500 ft.
Mid-Continent's No. 1 Schaff, C NE SW Sec. 22-11-22w	Waiting on cement to set 436 ft.
Mid-Texas Co.'s No. 1 Sidell, NE cor. SW SW Sec. 17-2-22w	Shut down 2,550 ft.
White et al's No. 1 Green, SW cor. Sec. 34-10-24w	Shut down 2,830 ft.

BLAINE COUNTY

Washoma Oil Co. et al's No. 1 Phillips, C NW SW Sec. 13-19-10w	Drlg. 4,600 ft.

CADDO COUNTY

Abernathy & Brown's No. 2 Houston, Sec. 24-6-13w	Shut down 1,115 ft.

COAL COUNTY

McGraw Oil Co.'s No. 1 Ward, NE SE Sec. 35-1-8	Shut down 250 ft.
Whitney et al's No. 1 Miller, SE NE Sec. 10-2-8	Shut down 760 ft.

COMANCHE COUNTY

Croy & Young's No. 1 Cline, NW NE NE Sec. 9-3-10w	Shut down 2,282 ft.
G. W. Stogner's No. 1 Doebel, C SW SW Sec. 3-3-9w	Shut down 1,450 ft.

GARFIELD COUNTY

E. L. Love et al's No. 1 White, SE cor. NW Sec. 9-24-6w	Shut down 5,350 ft.

GRADY COUNTY

J. V. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w	Shut down 100 ft.
Holden's No. 1 Phillip, SE cor. Sec. 3-19-18e	Shut down 1,860 ft.
Marion Oil's No. 1 Sanders, NW NE NW Sec. 10-9-18e	Shut down 2,387 ft.

GARVIN COUNTY

Marlarnee et al's No. 1 Phillips, NE SW SE Sec. 24-2-2w	Location.

GREER COUNTY

French's No. 1 Murphy, SW NW Sec. 23-7-21w	Shut down 1,490 ft.

HARMON COUNTY

Harmon-Tex Oil Co.'s No. 1 Hoadley, NE cor. Sec. 17-4-24w	Shut down 2,593 ft.
S. M. Stauffer's No. 1 Castleman, SW NE Sec. 8-4-26w	Shut down 635 ft.

HARPER COUNTY

Empire's No. 1 Bruce, C NE SW Sec. 12-25-20w	T. D. 7,935 ft.; plugged back to 7,500 ft.
Sinclair Oil & Gas Co.'s No. 1 Howell, C SW SW Sec. 14-26-24w	20,000,000 ft. gas 5,350-5,400 ft.; total depth 5,539 ft.; shut down; sprayed 50 bbls. gasoline.

HASKELL COUNTY

Ault et al's No. 1 Harrison, CWL SE NE Sec. 14-9-19	Shut down 650 ft.
Ault et al's No. 1 Hall, NW SW SW Sec. 14-9-19	Shut down 2,000 ft.
Ault et al's No. 1 Hall, SE NW Sec. 25-9-19	Shut down 50 ft.

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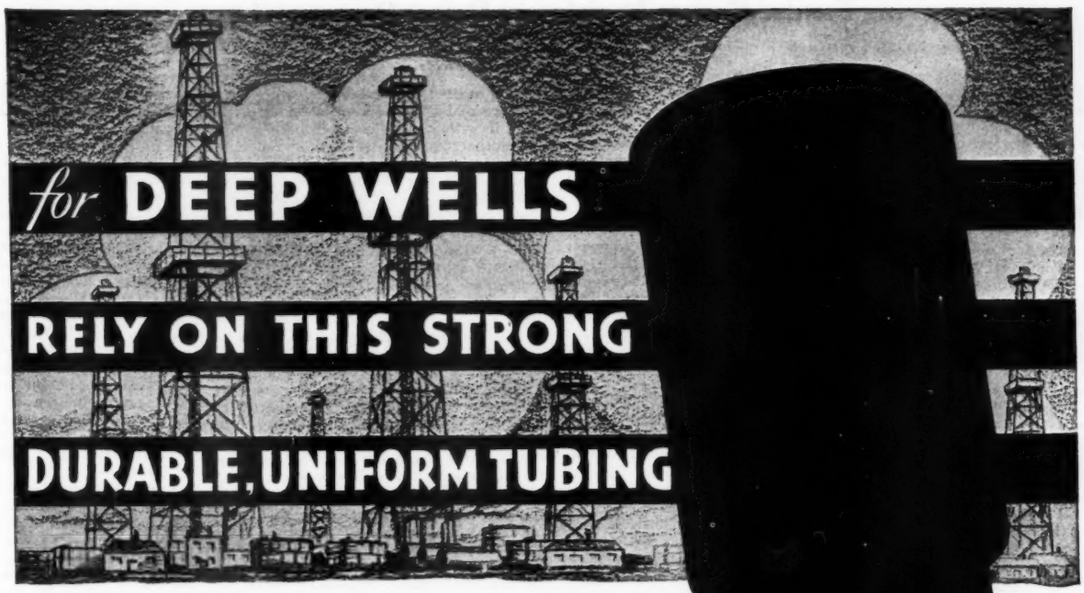

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Ritz-Canton Field Covers Big Area

May Develop Into One of Kansas' Largest Producing Fields. Kansas Legislature Passes Proration Law

By W. A. Spinney
Staff Correspondent, Kansas Fields

A reduction in the allowable production is expected to be put into effect in the State of Kansas during the coming weeks if the Carpenter oil proration measure becomes a law. The State's daily production shows a decline of approximately 1,000 bbls. a day, for the week ending March 14, the State averaging 111,250 bbls. a day during the seven days.

Due to pipe line congestion operators in the Ritz-Canton Pool, McPherson County, have been unable to take a potential gauge of the area. It has been curtailed by voluntary agreement, suggested by one of the companies, and in operation during the last month. Pipe line companies are unable to take the daily allowable allotments and a reduction in the output is expected. The area has an estimated potential of better than 50,000 bbls. a day and the pipe line outlet has been approximately 6,600 bbls. a day.

The Kansas senate during the week passed the Carpenter oil proration measure with modifications by a vote of 22 to 17. The house agreed to the changes and the measure went to Governor Woodring for signature.

Amendments which the senate made to the bill and which were accepted by the house somewhat limited the power of the public service commission in the administration of the act. One of the amendments would restrict the power of the commission in ordering drilling stopped and another would limit the commission's power to place in receivership companies violating the proration measure.

Saline County's Important Test

The possibilities in Saline County are still undetermined since H. C. Detrick and others' No. 1 Sudendorf, NE cor. SE, Section 30-14-2e, was shut down at 3,529 feet in the Silicious lime. The test found water in the Simpson sand at 3,442-70 feet after finding a showing of oil in the Viola, estimated at 25 bbls. a day. The Viola, Simpson and the Silicious lime in the test were believed to be structurally high compared to other tests drilled in the Saline Basin. The test was watched on account of its geological formations and the possibilities of finding oil in the area. Exploration work in the area followed an extensive geological survey and a number of tests found showings of oil in the Viola and Simpson formations. The same geological formations are found to be productive in the Ritz-Canton Field and the Voshell Pool in McPherson County.

Two large blocks of acreage totaling approximately 27,000 acres were completed during the week in Kansas by the Sulton Oil Co. One of these blocks is located in Saline County and consists of 12,000 acres lying in Townships 15-2w and 16-2w. The other block of 15,000 acres is located in eastern Ellsworth County, in Townships 14-6w and 14-7w. Both of these blocks are being surveyed by geological parties to determine the possibilities of oil and gas.

In the northern part of Cowley County, Bice and others' No. 1 Allen, in Section 29-30-6, has a showing of oil at 2,250 feet, and was drilling deeper to test the Silicious lime. The test is believed to be located favorably on structure compared to other tests drilled by the same operator in the vicinity.

New Showing in Russell County

The wildcat test of Agate Oil & Gas Co., No. 1 Rockefeller, SE cor., Section 6-13-12w, Russell County, which had a showing of oil in the Oswald sand at 3,042-44 feet, was shut down at 3,238 feet with another show of oil and 200 feet of water in the hole. The test may be carried to the Silicious lime formation after the 6-inch casing has been underreamed. About 180 feet of underreaming remains to be completed before the second showing of oil can be tested. The owners estimate the showing was found at 3,220-25 feet and that it was showing through 200 feet of water which is believed to be in the base of the Oswald lime.

Ritz Pool's Great Growth

At the time the discovery well was completed in the Ritz Pool in McPherson County none realized the size the field would develop into. The Shell Petroleum Corp.'s No. 1 Ritz blew in June 30, 1929, with a large flow of oil which went over the derrick. The area has gradually spread and enlarged until it now extends in some cases 8 miles wide and 10 miles long.

The discovery well was estimated at 5,000 bbls. a day, and there were no facilities at hand to handle the unexpected volume of oil. The producing area is still being enlarged and the pool may develop into one of the largest producing areas in the State.

The development has been orderly and slow. The producing territory has spread over such a large area the field is now called the Ritz-Canton. During the last few months the deep sand has been found productive north of the discovery well which found its production in chat. The possibilities of both the chat and the deep horizon are yet unknown, as neither has been defined. Northwest of the oil production is the Decker gas field, which is estimated to have a potential gas production of 600,000,000 feet a day, from 27 producing wells.

An attempt to extend production south of the present producing boundary of the Decker gas field is being made by the Dickey Oil Co. in No. 1 Williams, NE cor. NW Section 26-19-2w, which was drilling at approximately 2,300 feet. The test is located in Shell Petroleum Corp.'s acreage and if production is found in the chat it will be a mile extension.

Another test was spudded in the Ritz-Canton area during the week in an attempt to extend the deep sand production. Lassen & Corn and the Shell Petroleum Corp.'s No. 1 Gratton, SW cor. SE Section 19-19-1w, is the east offset to the recently completed well of Davis and others in SE cor. SW Section 19-19-1w, which extended the deep sand production a half mile north from the discovery well.

Empire Oil & Refining Co.'s No. 1 Domsch, NW cor. Section 6-20-1w, in the south end of the Canton Pool, was drilling in the chat with rotary tools at 2,942-67 feet. The test is expected to drill to the Viola, which is expected to be found at approximately 3,400 feet. If the test finds production in the deep formation it will extend the producing area a mile and a half south.

27 Gas Wells in Decker Field

During the week the twenty-seventh gas well was completed in the Decker gas area of McPherson County. Rushing Drilling Co.'s No. 1 Johnson, C SE NW, Section 10-19-2w, had 4,000,000 feet of gas from the chat at 2,921-41 feet. The well is located in the north end of the Decker Field.

Another oil test was started southeast of Wichita in Sedgwick County between the city limits and the municipal airport. The test is Fisher & Lauck's No. 1 Souders, NE cor. NW NW, Section 1-28-1, Sedgwick County. The test is located on a block of 320 acres, including the 160 acres of the Souders farm, 120 acres of the county poor farm and another 40-acre piece. The test is expected to be started by April 1. The area is considered promising, as a number of other tests have been drilled in the vicinity indicating the existence of a favorable structure.

Eastborough Declining

The 35 completed oil wells in the Eastborough Pool, in Sedgwick County, are reported to be now making 7,431 bbls. daily. These wells are being produced wide open without proration. About six months ago the same area had a potential output of approximately 15,000 bbls. of oil a day. The Fisher and Lauck's 160-acre Trustee lease is yielding the largest daily average production, making approximately 2,070 bbls. a day from seven wells. Vickers Petroleum Co. and others' 80-acre Key lease ranks the highest per well average in the area, with a daily average production of 1,800 bbls. from four wells. The largest single well in the pool is Fisher and Lauck's No. 4 Trustee, which is averaging 900 bbls. a day from the deep sand.

Most of the wells producing from chat are making water, one of the chat wells making 450 bbls. of water and 112 bbls. of oil a day. The wells producing from the deep sand are making practically no water. Two tests were drilling in the pool, one Magnolia Petroleum Co.'s No. 4 Wheeler, NW cor. SE SE, Section 19-27-2, which was drilling at 400 feet. The other test was Eisenhour Brothers' No. 1 Hoard, C SE NW, Section 19-27-2, which was shut down at 2,981 feet for casing. The chat formation is expected in the next few feet. Several other tests have spudded and are shut down. Some express the opinion the Blankenship Petroleum Corp.'s No. 1 Schott, in the SE cor. SW NE, Section 24-27-1, which is only a quarter of a mile east of the city limits of Wichita, indicates the presence of another oil pool, part of which is believed to underly the College Hill residential district of Wichita.

Eastborough Production

The production of the different leases in the Eastborough Pool on March 1 was as follows:

Company and lease—	Wells	Bbls.
Derby, Eastborough	4	358
Derby, Cloud	1	198
Derby, Rimel	1	233
Blankenship, Schafer	2	700
Blankenship, Schott	1	30
Continental, Freeman	1	40
Fisher-Lauck, Trustee	7	2,070
Fisher-Lauck, Schafe	3	438
Magnolia, Wheeler	4	500
National, Murdock	2	435
R. Ramsey, Davies	1	272
Siegel Bros., Soukup	1	112
Shawver, fee	1	170
Vickers, Keys	5	1,800
Work, Freeman	1	75
Total	35	7,431

Other pools in the county averaged during the seven days ending March 14, as follows: Valley Center Pool (Wright), 7,480 bbls. from 108 wells, slightly more than the Eastborough Pool. Greenwich Pool averaged 3,890 bbls. from 31 wells. Robbin Pool made 301 bbls. from 9 wells. The Goodrich Pool is making 210 bbls. a day.

Cowley County

Reynolds & Wasson's No. 1 Watts, NE cor. NW, Section 15-33-3, has been abandoned at 3,637 feet.

Ellis County

Jamot Brown and others' No. 1 Wadle, NE cor. NW, Section 13-15-16w, is dry and abandoned at 3,653 feet.

Harvey County

Alco Royalty Co. and others' No. 1 Heibert, NE cor. SE SE, Section 5-22-3w, has been abandoned at 3,810 feet.

McPherson County

W. C. McBride, Inc.'s No. 2 Giffin, C SE SW, Section 14-19-2w, has been completed for 14,957,000 feet of gas in chat 2,900-46 feet. Helmerick & Payne and

(Continued on Page 113)

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless marked otherwise)

BARTON COUNTY

Company, farm and location—	Remarks:
Syndicate Oil Co.'s No. 1 Boertz, NW SE SE Sec. 13-18-12w	Drlg. 1,500 ft.
Skelton Oil Co.'s No. 1 Ott, C SE SE Sec. 16-19-14w	Shut down 2,065 ft.
McCool et al's No. 1 Tsern, NW SE NE Sec. 12-20-11w	Shut down 1,600 ft.

CLARK COUNTY

Watchorn's No. 2 Morrison, NW NE Sec. 20-32-21w	T. D. 6,909 ft.; plugged back to 6,530 ft. to test show gas; S.D.

CLAY COUNTY

Crystal Oil et al's No. 1 Tivier, SW cor. Sec. 19-8-2	Shut down 2,390 ft.

COFFEY COUNTY

Heyburg's No. 1 Kroft, SE SW SE Sec. 30-22-14	Shut down 1,300 ft.
Roberts et al's No. 1 Hay, SW SE NW Sec. 32-22-15	Shut down 1,250 ft.

COWLEY COUNTY

Fisher et al's No. 1 Hurt, C SW SE SE Sec. 11-34-3	Rig.
Roth & Farout's No. 1 Reedy, SW NW NE Sec. 8-32-3	Shut down 1,040 ft.
Tom Fine's No. 1 Boyd, NW NE Sec. 23-32-4	Shut down 2,650 ft.

DICKINSON COUNTY

Severs et al's No. 1 Lavengood, NE SW Sec. 13-13-2	Shut down 3,850 ft.

ELLSWORTH COUNTY

Gilmore Oil et al's No. 1 Sturm, NW SW Sec. 31-17-9w	Drlg. 1,300 ft.
Hershey et al's No. 1 Schultz, C NE Sec. 9-14-8w	Rig.
Alyward et al's No. 1 Stratman, SE NW SE Sec. 1-17-10w	Drlg. 1,690 ft.
Aladdin Pet.'s No. 1 Stoddenberg, C SW Sec. 22-16-10w	Shut down 1,130 ft.
Milton et al's No. 1 Kester, SE NE Sec. 6-14-9w	Shut down 1,476 ft.; making 2,000,000 ft. gas.

FORD COUNTY

Carter Oil Co.'s No. 1 Everett, C NE Sec. 22-29-21w	Rig.
Swain et al's No. 1 Taylor, C NW Sec. 21-25-24w	Drlg. 4,610 ft.

GRAHAM COUNTY

Schleimeyer et al's No. 1 Clark, SW NE NE Sec. 11-9-25w	Plugged back to 3,397 ft.; drlg. deeper; 3,715 ft.

HARPER COUNTY

Beeler et al's No. 1 Bear, C NE Sec. 21-36-6w	Shut down 1,830 ft.

HARVEY COUNTY

Empire-Shell's No. 1 Showalter, NW SE Sec. 23-23-2w	Underreaming 10-in. csg. 2,210 ft.

KINGMAN COUNTY

Skelly Oil's No. 1 Miles, NE cor. Sec. 30-27-10w	1,635-40 ft. 2,000,000 ft. gas; at 2,005-20 ft. 6,000,000 ft. gas; at 2,133-42 ft. 3,000,000 ft. gas; showing oil 3,385 ft.; T. D. 3,441 ft.; S. D.; estimated at 600 bbls. a day.

LYONS COUNTY

Griffith et al's No. 1 King, NW cor. Sec. 8-19-10	Shut down 910 ft.

MARION COUNTY

Midwell's No. 1 La Master, NW cor. Sec. 31-22-4	Shut down 650 ft.

McPHERSON COUNTY

Henderson & Holden's No. 1 Sommerfield, NE NW Sec. 23-19-1w	Drlg. 2,954 ft.; showing 25 bbls. of oil and 50 bbls. of water a day; T. D. 3,227 ft.; shut down.

(Continued on Page 105)

F B&D

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Claiborne Parish Deep Test Failure

Harrison County, East Texas, Test Abandoned as Dry Hole. Sabine Parish Led North Louisiana Districts With Failures

By J. B. Crumpton

SHREVEPORT, La., Mar. 16.—A development of importance to operators in the wildcat area of the East Texas counties during the past week was the abandonment of S. D. Hunters' No. 2 Doherty in Harrison County as a dry hole at a total depth of 3,565 feet. This test was on the W. D. Burris Survey, the nearest wildcat in the county to the Longview Pool in Gregg County.

An important deep test in Claiborne Parish, Louisiana, was completed as a failure when Louisiana Oil Refining Corp. abandoned its No. 10 Langston, Section 19-21-7, at a total depth of 4,505 feet. This test has been watched with interest, being in close proximity to the Homer producing area where the Natchitoches and Woodbine sands have produced consistently for years. In all, 10 completions were listed for the week, 2 small producers and 8 dry holes. Sabine Parish led with failures, reporting 5, Claiborne 1, Covington County, Mississippi, 1, and Harrison County in East Texas, 1. Union County, Arkansas, had one small producer and Zwolle furnished the other.

In Bienville Parish, Coyle Brothers' No. 1 Lawhon, Section 15-16-8, is bailing at 2,866 feet, but has bailed only 1,600 feet of fluid from the hole due to leaky casing. The Pyramid Oil & Gas Co. is making good progress on its No. 1 Wheeler, Section 9-18-16, Caddo Parish, drilling at 2,320 feet. This is the same section where Junior Oil & Gas Co. completed a 35,000,000-foot gasser a few weeks ago. United Gas Co. is drilling at 4,245 feet on its deep test, No. 1 Emmons, Section 27-23-16, and United Gas Public Service Corp. has reached a depth of 5,217 feet on No. 1 Fortner, Section 5-22-16.

In DeSoto Parish, Dupree Fountaine on his No. 1 Nabors, Section 5-12-11, is underreaming 10-inch casing set at 97 feet, and C. D. Neff and others after an unsuccessful drill stem test at 2,832 feet are coring at 2,850 feet on their No. 1 H. D. Ramsey, Section 33-13-16.

An interesting test in Natchitoches Parish is W. M. Coats' No. 1 Collins, Section 28-9-10, where a test will be made at 4,003 feet. This well is reported to have a likely looking sand at this depth. Gulf Refining Co. is coring lime at 4,063 feet in No. 1 Bodcaw, Section 13-13-8, in this parish.

Zwolle District

The Zwolle district furnished one small pumper in Buttram Oil & Gas Co.'s No. 1 Hale, Section 1-7-13, which was completed for 35 bbls. at a depth of 3,226 feet. O. A. Gautier and others on their No. 1 Mischell, after junking hole at 1,800 feet, have skidded over 15 feet east and are rigging up on a second hole. Magnolia Petroleum Co. is drilling in hard shale at 4,400 feet on its deep test, No. 1 Lucius, Section 2-5-12.

In Ouachita County, Arkansas, Copenhaven and others have set 6-inch casing at 2,185 feet on No. 1 Elliott, Section 11-15-7, and L. H. Hamilton on No. 3 Doyle, Section 23-15-16, has cemented 6-inch at 2,010 feet. Louisiana Pipe Line Co. is drilling in hard sand at 4,015 feet in No. 2 McFaddin, Section 15-9-21, Pope County. Union County furnished one small producer when Marine Oil Co. completed No. 2 B. Thompson, Section 10-18-13, making 300 bbls. pipe line oil at a total depth of 3,582 feet. S. B. Hickman is coring red beds at 3,289 feet on No. 1 Hogg, Section 35-16-17. Southern Production Co. is in hard shale at 2,500 feet in No. 1 Winnfield, Section 16-19-15.

MISSISSIPPI

Mississippi had one completion, a dry hole, when United Production Co. abandoned No. 1 McIntosh, Section 5-8-16, Covington County, at a depth of 3,383 feet. Ohio Oil Co. in Clay County has set 9⅝-inch casing at 2,929 feet on its No. 1 Cantrell, Section 16-15-5. In Grenana County, Carter-Pace on No. 1 Dubard, Section 18-22-4, is drilling in Tuscaloosa at 4,000 feet. The Amory Petroleum Co. reported striking gas sand in No. 1 Harris, Section 18-13-17, Monroe County, at 2,324 feet. This well is 1 mile south of the original Carter well in the Amory Field.

New Wildcat Blocks

Several wildcat tests have been started in East Texas and North Louisiana during the past week. Sam D. Hunter is moving rig on No. 1 Marshall Felkner, 1,800 feet east, 160 feet north of southwest corner of 66-acre tract on the John L. Chambers Survey, Harrison County, Texas. Mr. Hunter is reported to have about 6,000 acres in this block. Sinclair Oil & Gas Co. is starting on No. 1 Cora L. Davenport, John B. Morton Survey, also in Harrison County. This same company is spudding in No. 1 White, C. S. White Survey, 7 miles west of Jefferson, Tex., in Marion County. The Eden Oil Co. is also making location in Marion County on J. M. DeWare estate, 150 feet south, 1,507 feet east of northwest corner on S. R. Hazelwood Survey. The Texas Company will make a deep test on No. 2 G. W. Brumble, 440 feet south, 200 feet east of northwest corner on John Womack Survey, in Panola County. In Vernon Parish, Louisiana, Weir & Smith are rigging up to drill on a 9,000-acre block in NE cor., Section 14-2-11. This test is about 3 miles northwest of the town of Leesville.

A total of 11 new operations were begun during the past week and in addition 2 were in Richland Parish, 3 in the Zwolle proven area and 2 in Union Parish.

Daily Average Runs

Zwolle continued to lose, dropping off 570 bbls. from last week, and Caddo light lost 165 bbls. daily, while Urbana was the main increase, picking up 600 bbls., but not enough to offset the total losses, leaving a net decrease daily of 295 bbls.

Daily average runs from the several pools were:

NORTH LOUISIANA	
Bellevue	560
Caddo, light	7,800
Caddo, heavy	2,785
Cotton Valley	1,810
DeSoto-Red River	2,705
Elm Grove	470
Haynesville	5,680
Holly	745
Homer	3,370
Pleasant Hill	490
Sarepta-Carterville	1,510
Urania	4,620
Zwolle	7,960
Total North Louisiana	40,505
Last week	41,250
Decrease	745
ARKANSAS	
Bradley	60
Champagnolle	3,180
El Dorado	3,805
Lisbon	780
Mount Holly	60
Nevada	1,000
Smackover, light	4,410
Smackover, heavy	32,570
Stephens	870
Urbana	1,650
Total Arkansas	48,385
Last week	47,935
Increase	450
Both states	88,890
Last week	89,185
Decrease	295

LOUISIANA-ARKANSAS PROVEN AREAS

NORTH LOUISIANA

BOSSIER PARISH—CARTERVILLE

Company, farm and location—	Remarks—
Del.-La. Dev. Co.'s No. 6 Bollinger, 330 ft. S, 220 ft. W, NW cor., Lot 17, in Lot 16, Sec. 31-23-11	W.O.S.R; T.D. 3,217 ft.

BOSSIER PARISH—SLIGO

United Gas Public Service Corp.'s No. 1 Smith, 1,980 ft. S, 342 ft. W, NE cor., Sec. 14-17-12	Set 6⅝-in. 2,389 ft; T.D. 2,439 ft.

CADDO PARISH—GREENWOOD

Calatex O. & G. Co.'s No. 1 Edgar, 1,460 ft. S, 1,900 ft. E, NW cor., Sec. 17-16-16	Location.
Calatex O. & G. Co.'s No. 1 McAnn-Alfred, 1,310 ft. S, 970 ft. E, NW cor., Sec. 17-16-16	Location.

CADDO PARISH—MOORINGSPORT

Falcon Oil Co.'s No. 5 Nunnally, 2,379 ft. N, 3,849 ft. E, SW cor., Sec. 29-20-15	Set 6-in. 1,954 ft; drlg. 2,298 ft.

CADDO PARISH—OIL CITY

Trio Corp.'s No. 1 Levee Board, 212 ft. S, 500 ft. E, NW cor., Sec. 17-20-15	Bailing 1,605 ft.

CADDO PARISH—PINE ISLAND

Haynes Bros.' No. 2 Spell, 956 ft. W, 200 ft. N, SE cor. SE, Sec. 15-21-15	Fishing bailer; T.D. 3,962 ft.
Simplex Oil Co.'s No. 1 Youree-Glassell, 500 ft. N and E, C, Sec. 13-20-15	Set 10-in. 62 ft.

CLAIBORNE PARISH—HOMER

La. Oil Ref. Corp.'s No. 1 Langston, 660 ft. S, 528 ft. E, NW cor. SW SW, Sec. 19-21-7	Abd. 4,504 ft.

MOREHOUSE PARISH

Bahan & Bahan's No. 4 Feazel, 900 ft. W, 330 ft. S, NE cor., Sec. 2-20-4	Location.

OUACHITA PARISH

Jordan Drlg. Co.'s No. 7 Cole, 285 ft. S, 1,459 ft. W, NE cor., Sec. 49, in Sec. 50-18-4	Location.
United Carbon Co.'s No. 6 Spade, 1,180 ft. S, 140 ft. E, NW cor., Sec. 27-19-4	Location.

(Continued on Page 87)

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Rotary operations unless otherwise designated)

NORTH LOUISIANA

BIENVILLE PARISH

Company, farm and location—	Remarks—
Coyle Bros.' No. 1 Lawhon, 300 ft. N, 300 ft. E, SW cor. SE NE, Sec. 15-16-8	S.D. for csg; T.D. 2,866 ft.

BOSSIER PARISH

Andrews & Davlin's No. 1 Nattin, 100 ft. N, 250 ft. W, C, Sec. 15-22-14	Drlg. chalk 2,250 ft.
H. I. Morgan's No. 13-B Kendrick, 2,840 ft. E, 1,320 ft. W, SW cor., Sec. 22-19-11	Fishing for drill stem; T.D. 1,702 ft.
Rombaugh et al's No. 1 Allison, SW SE, Sec. 10-19-13	Arranging to deepen; T.D. 1,600 ft.
R. O. Roy's No. 1 W. H. Hodges, C NW NW, Sec. 19-16-10	Drlg. shale 1,975 ft.

CADDO PARISH

R. E. Davidson et al's No. 1 Weilier, Sec. 33-17-13	S.D; W.O. 1,991 ft.
Garry M. Gordon's No. 1 Hatcher, 560 ft. E, 600 ft. S. NE cor. NW, Sec. 11-17-15	Location.
R. H. Libby's No. 1 Foster (was Gooch et al's), Sec. 29-15-16	Drlg. 3,230 ft.
Pyramid O. & G. Co.'s No. 1 Wheeler, 3,200 ft. W, 75 ft. N, SE cor., Sec. 9-18-16	Drlg. 2,320 ft.
United Prod. Co.'s No. 1 Emmons, 1,337 ft. E, 660 ft. N, SW cor., Sec. 27-23-16	Drlg. 4,265 ft.
United Gas Public Service Corp.'s No. 1 Fortner, 330 ft. S, 330 ft. E, NW cor., Sec. 5-22-16	Drlg. 5,217 ft.

CALDWELL PARISH

Carter Bell's No. 1 Taylor, 150 ft. S, 150 ft. E, NW cor. NE SE, Sec. 17-14-4	Derrick.
Hudson et al's No. 1 Burton, Sec. 35-12-2e	Drlg. 2,650 ft.

CATAHOULA PARISH

National Drlg. Co.'s No. 1 Marsh McMillier, 70 ft. N, 100 ft. W, C, Sec. 26-9-6	S.D. 3,086 ft.

CLAIBORNE PARISH

Baird Bros. et al's No. 1 Whittaker, 600 ft. N, 400 ft. W, SE cor. NE, Sec. 30-20-7	Reaming 2,415 ft.

CONCORDIA PARISH

Joe Marr et al's No. 1 Maxwell, C, Sec. 35-3n-8e	S.D. 3,622 ft.
Fred Stovall's No. 1 Grasmere (no check), Sec. 23-8-10	Drlg. 1,105 ft; dry; D.S. test 1,025-1,100 ft.
United Gas Public Service Corp.'s No. 3 Saunders, 2,497 ft. E, 3,883 ft. S, NE cor., Sec. 11-8-9, in Sec. 42	D.S. test; estimated 2,000,000 to 3,000,000 ft. gas; cmtd. 9-in. 1,400 ft; T.D. 1,438 ft.

DE SOTO PARISH

Dupree-Fountain's No. 1 J. M. Nabors, 250 ft. S, 250 ft. W, NE cor. NW, Sec. 5-13-11	Set 10-in. 97 ft.
S. A. Guy's No. 1 Dowling Bros., 469 ft. E, 382 ft. S. NW cor. NE, Sec. 31-14-14	S.D; sandy shale 1,354 ft.
Keatchie O. & G. Co.'s No. 1 Hallie Smith (was H. E. Weichert's), NE SE, Sec. 31-14-15	S.D. 2,350 ft.
C. D. Neff et al's No. 1 Ramsey, 1,000 ft. W, 400 ft. S, NE cor. SE, Sec. 33-13-16	Coring 2,850 ft.
Ernest Nickelson's No. 1 Nabors, 1,200 ft. N, 1,800 ft. W, SE cor., Sec. 32-13-11	Set 8-in. 1,100 ft; T.D. 1,300 ft; chalk rock.

NATCHITOCHES PARISH

W. M. Coats' No. 1 Collins, 730 ft. N, 50 ft. E, C, Sec. 28-9-10	Drlg. lime 3,988 ft.
J. W. Cooper et al's No. 1 Cooper, NW SW, Sec. 35-11-10	Coring 3,025 ft.
Cooper et al's No. 2-A Cooper, C SE SE, Sec. 32-11-10	S.D. 1,518 ft.
Gulf Ref. Co.'s No. 1 Bodcaw, 1,910 ft. S, 605 ft. W, NE cor., Sec. 13-13-8	Coring lime 4,063 ft.
C. M. Talley et al's No. 1 C. M. Talley, 1,980 ft. W, 660 ft. S, NE cor. SE, Sec. 29-11-10	Arranging to test 1,256-59 ft.

RED RIVER PARISH

La. Oil & Dev. Co.'s No. 2 La. Delta Pecan Co., 2,950 ft. S, 300 ft. E, NW cor., Sec. 27-13-11	Location.
Lucky Strike Oil Co.'s No. 1 Chaffraix, 200 ft. S, 200 ft. E, C, Sec. 32-12-10	S.D. 3,010 ft.

RICHLAND PARISH

Alto Gas Co.'s No. 2 Hunt, 660 ft. S and E, NW cor., Sec. 13-17-5	Derrick.
Southern Carbon Co.'s No. 1 C. M. Noble, 4,636 ft. N, 2,254 ft. W, cor. Secs. 7, 8, 17 and 18, in Sec. 37-15-6	Making test 2,442 ft.

(Continued on Page 100)

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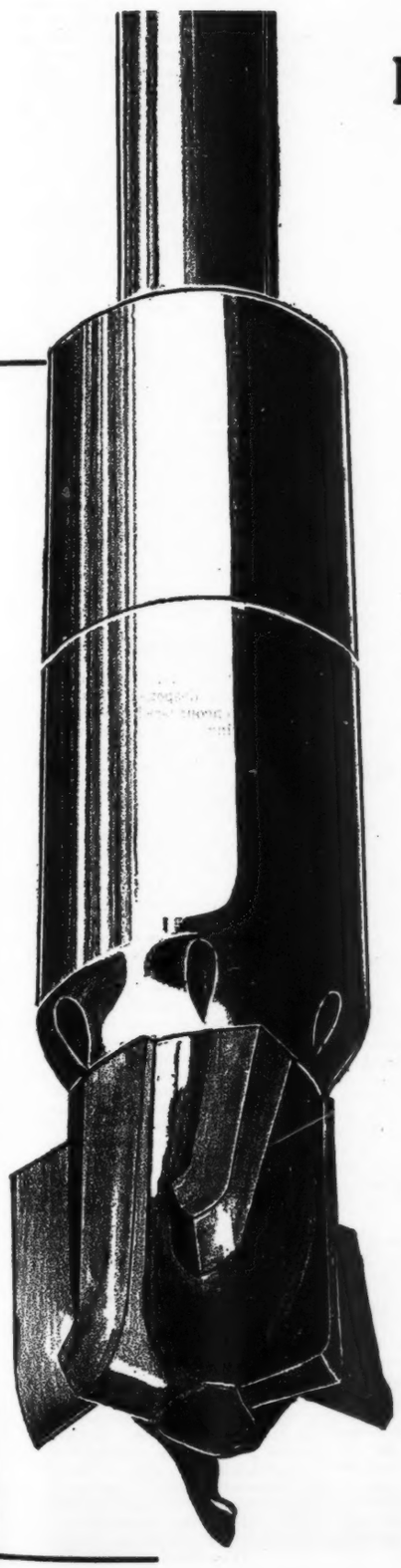

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Eunice District Well May Be 800 Bbls.

Berthoud Dome, Colorado, Test May Make Commercial Well. Wyoming Legislature Passes Lease Bill. Dry Hole in Montana

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Mar. 16.—The Atlantic Oil Producing Co.'s No. 1 Coleman, one-third of a mile northwest of the nearest producer in the Eunice Pool in Lea County, New Mexico, looks as if it will make an 800 to 1,000-bbl. well. The Harlan test in Valencia County has reached contract depth at 6,100 feet and will go deeper. One new operation in Eddy County, a well to be drilled to 3,200 feet for water, was reported.

The Standard Oil Co. of Colorado's test to the Muddy on the Berthoud Dome in Colorado is showing up favorably and may make a good commercial well. Six months after the Greasewood discovery in Weld County finds that area without a new location having been made. Total oil bailed from the Fitzsimmons test near Denver amounted to 300 gallons.

The Wyoming Legislature authorized the State Land Board to make leases on State lands run for 10 years with preferential renewals in place of the old 5-year period. The Ohio Oil Co. appears on the eve of making an important discovery in the Lakota sand in the Big Muddy Field.

Montana had one completion, a dry hole in Toole County, and one new location in Liberty County and another on the Dry Creek Dome in Carbon County.

NEW MEXICO

Eunice Area—Lea County

Atlantic Oil Producing Co.'s No. 1 Coleman, SW NE NW, Section 17-21-36, in the Eunice Pool, one-third of a mile northwest of the group of offsets in the center of the section, looks as if it will make an 800 to 1,000-bbl. well at its present depth, but is drilling ahead at 3,973 feet. It is bottomed in hard gray lime and heading every 40 minutes and making around 40 bbls. at each head. It topped the pay at 3,860 feet and had a show of sulphur water at 3,956-61 feet, the water rising 50 feet in the hole. The California Co.'s No. 1 Meredith, SE cor. NE, Section 19-21-36, is drilling at 3,560 feet in lime and had an increase in gas at 3,483-93 feet.

Hobbs Pool—Lea County

The Gypsy Oil Co.'s No. 7 Grimes, SE NE NW, Section 32-18-38, the only well drilling in the proven area, is making hole below 3,300 feet. It had the first gas, estimated at 35,000,000 feet, at 3,150 feet. Western Drilling Co.'s No. 1 State, C SW NE, Section 15-18-37, to the northwest of production, has rig completed and is drilling a water well. National Securities Oil Co.'s No. 1 Linam, NE SE SW, Section 33-18-37, 4 miles west of the pool, is shut down for orders after plugging back from 4,272 feet to 4,188 feet to shut off water.

Caprock Area—Lea County

Culbertson and others' No. 1 State, C NE, Section 22-18-34, formerly carried as the Explorers Syndicate, is drilling water well. A 5,000-foot test is planned. Western Drilling Co.'s No. 1 Bridges, SE cor. NW, Section 17-17-34, is drilling at 4,905 feet without picking up a second break in the lime expected at around 4,900 feet. It will be carried to 5,000 feet. It had a show for a small well at 4,688-4,757 feet. Western Drilling Co.'s No. 1 State, SE NE NE, Section 16-20-32, northwest of the Lea Pool, is shut down for orders at 955 feet.

Jal Area—Lea County

Leonard & Levers' No. 1 Justis, C SE NE, Section 19-25-37, two-thirds of a mile east of a big gasser, commenced spudding on March 4.

Lovington Area—Lea County

Western Drilling Co.'s No. 1 State, NE cor. SE, Section 13-17-36, is drilling at 1,540 feet in the red beds.

State Oil & Refining Co.'s refinery at Dayton has been awarded a contract for 83,300 bbls. of road oil by the state highway department for use on federal aid projects. The bid was made jointly with the Petrol Co. of California. The Dayton plant has been operating part time on oil trucked from the Twin Mounds, or Getty Pool, being handicapped by road conditions. Plans formulated last fall for a pipe line from the field to the refinery have not yet been fully matured. The plant is expected to run 1,500 bbls. of crude daily while crude contract is being filled.

Eddy County

Oil Well Drilling Co.'s No. 1 Baker, SW NW NW, Section 21-21-26, northwest of Carlsbad, spudded with a machine and shut down at 10 feet. It is planned to sink this well to 3,200 feet unless water is found at a shallower depth. Elevation is 3,216 feet. Flynn, Welch & Yates Oil Co.'s No. 2 State, CNL N half, Section 28-18-28, is bottomed at 2,073 feet and standing with 5⅞-inch cemented at 2,070 feet. It is being drilled to repressure the sands in the south Artesia Field.

Chaves County

Warman Oil Trust's No. 1 Siebert, NE. Section 27-13-24, Blackdom district, is drilling at 2,075 feet in hard lime. R. T. Neal and others' No. 1 Russell, SW NW NW, Section 21-14-25, in the Hagerman district, temporarily abandoned without plugging in June, 1929, at 1,382 feet, is resuming and is drilling at 1,702 feet in hard lime.

Harding County

Milwaukee Syndicate's No. 1 Kerlin, NW cor. SE, Section 34-21-30, Bueyeros district, is drilling at 400 feet and had a show of oil and gas at 380 feet.

Valencia County

Thomas B. Harlan and others' No. 1 Harlan Ranch, NW cor., Section 5-6n-2e, De Chaves district, is shut down at 6,100 feet, having completed contract. It is bottomed in red shale and sand. It is expected contract will be renewed for another 1,000 feet. This was the third hole started, two others having been lost at around 4,200 feet. It is being drilled with a rotary. It started in the Mancos shale. Acme Development Co.'s No. 1 Santa Fe, SW NW, Section 27-6-4w, is bottomed at 5,065 feet and underreaming the 5⅞-inch.

Torrance County

J. B. Witt Oil & Gas Co.'s No. 1 Kutchin, NE SE SW, Section 12-7n-7e, is drilling at 1,410 feet in hard sharp sand. This is sometimes known as the Sinco Oil Co.'s No. 2 DeHart.

COLORADO

Larimer County

Standard Oil Co. of Colorado's No. 1 Hertha, NW cor., Section 21-4n-69, on the Berthoud Dome, gives strong evidence of this pool bringing in some good wells. No. 1 Hertha was drilled through the Muddy sand to a total depth of 3,792 feet and had 2,500 feet of oil in the hole and no water. The sand was hard and tight and no gas was showing with the oil. It was given a shot of 60 quarts and considerable gas was coming into the hole when it bridged. The oil rose 1,500 feet in 30 minutes through the bridge. Cleaning out is in progress. No water is showing. A hard sand cut at 3,750-65 feet at first was believed to be the Muddy, but subsequent correlation indicated it was the caprock over that formation. Officials estimate the well will make between 300 and 500 bbls. This dome was drilled 10 years ago by the Midwest Refining Co., and some oil and gas were found in the upper formations and water in the Morrison. It gave evidence of being a small commercial pool, but drilling obligations were heavy and the Midwest pulled out. The Five Square Oil & Gas Co. then went in and drilled wells and found gas and small quantities of oil. Last year a drilling agreement was made with the Standard Oil Co. of Colorado and the latter has been deepening No. 1 Hertha to the Muddy. The structure is one of the front range domes and lies to the south of the Wellington and Fort Collins Fields and north of the old Boulder Field.

Weld County

Platte Valley Petroleum Co. shipped 8,374 bbls. of oil from its No. 1 Patterson, NE SE NW, Section 24-6n-61, Greasewood Dome, in February, an average of 300 bbls. a day. This does not represent the entire output of the well as some oil was sold to farmers in that territory. While negotiations are pending for the drilling of several wells, none has yet been definitely closed. The discovery well came in last October but no new operations have been started.

Morgan County

Indian Territory Illuminating Oil Co.'s No. 1 State, C NE NE, Section 16-1n-57, Fort Morgan anticline, is bottomed at 4,090 feet and cleaning out 100 feet off bottom.

Arapahoe County

MacDeb Drilling Co.'s No. 1 Fitzsimmons, C S half NE, Section 7-4s-66, near Aurora, was deepened a few feet to 5,750 feet, but encountered considerable trouble from cavings back of 6¼-inch sloughing into the hole. This string, of which 5,679 feet was in the hole, had not been cemented when the well made a good show of oil a few weeks ago. It was decided to cement the string to stop the caving and this was done the past week. It is now being recemented as the first job failed to hold. C. A. Caruso, president of the company, says that 300 gallons of oil were bailed from the hole and that there is no water showing.

Adams County

Nettie M. Slatt's No. 1 Hills, SE cor., Section 27-3s-64, Watkins district, is bottomed at 2,508 feet and moving in another boiler to furnish additional power. The 10¾-inch was cemented at 2,500 feet and 4,000 feet of special seamless 8⅝-inch is on the racks. Workmen have been troubled considerably with gas coming from the bottom of the hole and a tunnel has been completed from the cellar to a point some distance away as a precautionary measure to aid the drillers in an emergency.

Baca County

A. R. Jones Oil & Operating Co.'s No. 1 Boice Cattle, NW NE, Section 22-34-42, Miles Camp structure, is shut down at 4,760 feet. It was supposed to have passed out of the Pennsylvanian at around 4,450 feet.

Moffat County

Mountain Fuel Supply Co.'s No. 2 State, SE NE, Tract 37-12-100, Hiawatha district, is rebuilding rig destroyed by fire. Total depth is 2,180 feet.

WYOMING

The Wyoming legislature passed a bill in its closing sessions authorizing the State Land Board to lease state and school lands for a term of 10 years with a preferential right to the lessees to renew the leases for successive 10-year periods. Formerly state lands could be leased for only a 5-year period and the

(Continued on Page 91)

SMALLER PRODUCTION IN FEBRUARY SHOWN IN TURNER VALLEY FIELD

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Mar. 16.—Pipe line runs for the Turner Valley Field for February showed a total of 132,267 bbls., compared with 156,658 bbls. in January. Of this production, 106,704 bbls. were delivered to Imperial Oil, Ltd., and 25,563 bbls. to Regal Oil & Refining Co. Of the recent completions, Commonwealth Petroleums' No. 1 and Structure's No. 1, reported good for 140 to 150 bbls. a day each, did not come into production till late in February. The daily average of the entire field in February was 4,724 bbls., compared with 5,054 bbls. in January.

In South Turner Valley, Section 17-19-2w5, Lowery Petroleum's No. 2, NW, is the deepest active test below 5,956 feet and more than 815 feet in the lime.

No new drilling has been done for some months on the Home area in Section 20-19-2w5. For the week ending February 27 the production aggregated 2,170 bbls. of naphtha and 73 bbls. of crude from all six wells.

South Turner Valley

In South Turner Valley, Commonwealth Petroleums' No. 1, LSD 7, Section 9-19-2w5, is reported making around 150 bbls. from the lime at 5,000 feet.

In the Mercury area, Mercury Oils' No. 1, Section 4-19-2w5, is holding up very well, a recent 24-hour run showing 579 bbls. Miracle Oils' No. 1 in the same section showed 249 bbls. Mercury's No. 5, Section 4-19-2w5, has been abandoned at 5,998 feet, having apparently found the eastern limit of the field. Recently samples of the formation were pronounced by geologists to be a recurrence of the Benton formation, and drilling was discontinued. Mercury Oils' No. 6, LSD 12, Section 4-19-2w5, is rigging up.

Shareholders of Freehold Oil Corp., Ltd., held their annual meeting recently at Calgary, when the following officers and directors were elected: President, Senator W. H. Laird; vice president, F. R. MacDonald; managing director, A. J. MacWilliams; secretary, G. C. Hyatt; directors, R. L. MacMillan, F. J. Whitcroft. Contract has been made with the Union Drilling & Development Co. of Calgary for drilling of Freehold's No. 4 on S half LSD 9, Section 28-18-2w5, and derrick is now being erected, the test to spud in before May 1.

Central Turner Valley

In Central Turner Valley, Widney Petroleums' No. 1, LSD 11, Section 12-20-3w5, was shot 485 feet in the lime at 5,500-foot depth without greatly increasing production, reported between 20 and 30 bbls. The well is also making about 9 bbls. of light crude between the casing from an upper sand. Illinois-Alberta Oils' No. 1, LSD 14, same section, is reaming to bottom in the lime after recovering tools; if this fails to restore the original production, around 100 bbls., the hole will be carried deeper into the lime and given another shot. British Dominion Oil & Development Corp.'s No. 3, LSD 6, same section, is drilling out cement in the top of the lime at 5,212 feet, with some wet gas showing. British Domin-

(Continued on Page 113)

HERCULES ENGINES

HERCULES Engines—Fours and Sixes ranging in size from 15 to 175 H. P.—are built solely for heavy-duty service. They power water pumps and slush pumps, cable and rotary drilling rigs, spudders and winches, compressors, generators, arc welders and other types of oil-field equipment. In the realm of heavy-duty power Hercules Engines and Power Units have earned a position of acknowledged leadership.

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Second Goliad Producer Is Improving

Oil of Very High Gravity, Nearly Gasoline. New Pool in Dale County. Extension in Guadalupe County

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Mar. 16.—T. B. Slick estate improved its No. 1 Allen, the second producer drilled in the new pool in Goliad County, by deepening it, but the oil is still high gravity, nearly gasoline.

In Kerr-Real County area, Evans & Sprinkle's No. 1 J. M. Auld, which last week looked like it was running high, is now looking the opposite and below the depth of No. 1 Jeff Love and still dry.

In the Dale area in Caldwell County they have opened a new pool, however, and in Pettus Cosden's No. 3 McKinney is the first test in the area to go on the pump, but others are arranging to do so. In the Darst Creek Field in Guadalupe County the Sun Oil Co.'s No. 1 Dowdy with a showing of oil in the top of the Edwards looks much like an important extension to the field.

Generally over the country it has been a rather eventless week for Southwest Texas but showing a further slight improvement and increase in activity. The picture at the close of the week, however, was much changed from what it was the week before in several important spots over the country.

T. B. Slick estate's No. 1 Poetter opened a new pool in Goliad County on the DeWitt County line during the close of the Christmas holiday week. No. 1 Allen is the first test to be drilled since. It was a gas well a week ago and good for about 60 bbls. of light oil and at the same depth as No. 1 Poetter, 4,212 feet. It was deepened to 4,238 feet and with 525 pounds pressure on the tubing and 1,000 pounds on the casing made the first night 20 bbls. of light gravity oil and was estimated to be good for about 40,000,000 feet of gas, the same as when it first came in. The next day, after being completed at 4,238 feet, No. 1 Allen increased to about 100 bbls. of light gravity oil and 50,000,000 feet of gas and was thought to be turning into an oil well. The operators are starting the third test, which is No. 1 Riedel, 1,830 feet southwest of No. 1 Poetter. No. 1 Allen is 1,500 feet east of No. 1 Poetter.

The understanding is that the operators will continue to feel around for the edges of the pool. The Slick estate owns a considerable block of acreage and it will therefore be pretty much a unit development proposition, at least until the proven acreage is extended considerably. There will not likely be any big production coming from the pool for some months, though it has the earmarks of being a good producing pool.

Kerr-Real Counties

The Kerr-Real situation has got more than ordinary attention locally in Southwest Texas because it is in a locality far removed from any oil production and on the northwest edge of the Southwest Texas area where there has been scant effort to find oil in years past. Any sort of a field would be important because it is under entirely new conditions and in the Pennsylvanian which is not found elsewhere in Southwest Texas.

Last week Evans & Sprinkle's No. 1 J. M. Auld, a few miles northwest of No. 1 Jeff Love in Kerr County, looked interesting. Paleontologist reports indicated the well was running high but during the week it passed the depth at which No. 1 Jeff Love is producing oil and is still dry and so does not look so good. While the exact depth of No. 1 Jeff Love may be a little off due to cable stretching, it is not far from 3,391 feet, where it is carried by most companies. No. 1 J. M. Auld in Real County is now below 3,485 feet and dry. It has been in blue shale and caving somewhat.

Other tests in that part of the country have not reached a depth yet where they are of so much interest. No. 1 A. D. Auld, southwest of No. 1 Jeff Love, is running a string of casing at 1,250 feet to protect the hole and it will be carried down as the hole is deepened.

No. 1 Jeff Love had two good showings, one at 2,552 feet and one at the present depth, 3,391 feet, each good for a small well. No. 1 J. M. Auld has failed to get either of these showings. In some ways it is the choice location, as many oil men have it worked out that the structures in that part of the territory will run northwest and southeast, and this test is northwest from No. 1 Jeff Love. Unless No. 1 J. M. Auld picks up something new in the territory or until some of the four or five tests in that part of the country get down around producing horizons the Kerr-Real territory will not get so much attention.

Caldwell County Gets Well

After considerable idleness and looking like a well for some months Mills and others' No. 1 McMahon in Caldwell County is on the pump and started off making 10 bbls. an hour for four hours and then had to shut down to repair the machinery. Total depth is 2,185 feet. There is some sulphur in the oil and it has the characteristics of oil from the Edwards lime but the location is such that the Edwards would be expected to be found deeper. The depth is about right for the Austin chalk or the Eagleford. The well is on a straight line between the Dale Field on the northeast and the old Luling Field on the southwest, being about 5 miles from the Dale Field and in the James Pinchback Survey.

Sun Oil Co. Extension

In the Darst Creek Field Sun Oil Co.'s No. 1 Dowdy, several locations south of nearest production in the field, which has been looked upon as a probable extension, was in the top of the Edwards lime and showing a little oil at 2,587 feet and setting casing at 2,570 feet to test. Corrected depth to the top of the Austin chalk is 2,208 feet. Everything is favorable for its making a well thus far and if it does there is room for quite a little additional drilling in that territory.

Bee County Area

In the Pettus area Cosden Oil Co.'s No. 3 McKinney in the small pool west of the townsite is the first test in the territory to go on the pump. Gas wells allowed to run for the sake of the gasoline they made seem to have run the pressure down in that territory but all gas wells are now closed in. Several other wells in the various pools are arranging to go on pump also.

Mauldin's No. 1 fee at the southwest corner of the townsite pool looks like a well. On drill stem test it made quite a lot of gas and sprayed some light oil. Depth is 3,857-64 feet which checks higher than production in the townsite pool and is about a quarter of a mile southwest of nearest production in the townsite. Other tests drilled toward that side of the pool had sort of given the idea that the limits of the field in that direction had been reached.

On the east of the townsite United Production Co. is closing up the gap between the townsite on the west and the Ray-McKinney Pool on the east and there is not much question but it is all one pool. The company's No. 35 Ray, 1,100 feet east of nearest production in the Ray-McKinney Pool, is getting started. The company has extended the pool a considerable distance straight east and has now made location for No. 36 Ray, which is a few locations north of the line, to feel things out in that direction.

SOUTHWEST TEXAS PRODUCTION

Agua Dulce	6
Bexar County	353
Branyon	25
Bruner	15,070
Buchanan	102
Chapman	4,055
Dale	275
Darst Creek	30,051
Goliad County	50
Kingsville	122
Larremore	15
Luling	9,179
Lytton Springs	714
Manford	167
McMullen County	20
Medina	22
Minerva	404
Mirando district*	13,450
Normanna	40
North Pettus	291
Pettus	6,902
Saxet	186
Somerset	1,350
S.R.C.-Vacuum	144
Thrall	35
White Point	40
Yoast	228
Total	83,326
Week ending March 7	81,113
Increase	2,213

*Includes Charco-Redondo, Jennings and Mirando Valley, Zapata County; Albercas, Aviator, Caroline-Texas, Mid-O-Juelos, Schott and Wolcott, Webb County; Alworth, Henne-Winch-Fariss and Randado, Jim Hogg County; Cole, Driscoll, Kohler, Schoolfield-O'Byrne, Duval County.

Laredo District

There have been no completions in the Laredo district for a couple of weeks and only a few new locations announced. In the Escobas Pool, which for months has been furnishing the bulk of the completions for the whole district, Shankle's No. 2 Garza in Block 10 of the Zorro Subdivision of the Comitas Ranch looks like a small well. It is in the new 1,400-foot sand off on the southwest fringe of the pool where two or three good wells

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SOUTHWEST TEXAS PROVEN AREAS

DOBROWOLSKI POOL—BEXAR COUNTY

Company, farm and location—	Remarks:
Morgan Bros.' No. 3 Masterson, Miguel Gortaris Sur.	300 ft. S of No. 2 T. D. 650 ft.; set csg.
Gatlin Oil Co.'s No. 2 Beck, Juan Montes Sur.	T. D. 300 ft.; drlg.
Gatlin Oil Co.'s No. 5 Beck, Juan Montes Sur.	Comp. pumper.
Bolling & Michael's No. 1 Adams, Miguel Gortaris Sur.	T. D. 700 ft.; (W.O.).
F. H. Eckert's No. 10 Dobrowolski, 400 ft. from W line, 150 ft. from S line of lease, Sur. No. 52	Location.
A. J. Swearingen's No. 6 Sandemer, 600 ft. S of No. 1, M. Manchaca Sur.	Location.
A. J. Swearingen's No. 7 Sandemer, 300 ft. S of No. 6, M. Manchaca Sur.	Location.

BRUNER POOL—CALDWELL COUNTY

Joe Bruner's No. 1 Malone, A. Floyd Sur.	T. D. 50 ft.; spudded and shut down.

EDDINGTON POOL—FALLS COUNTY

Eddington et al's No. 3 Llewellyn, Geo. Allen Sur.	Rigging up.

DARST CREEK FIED—GUADALUPE COUNTY

Gulf Prod. Co.'s No. 16 T. Dix, J. R. Robinson Sur.	T. D. 2,548 ft.; set csg.
Humble Oil & Ref. Co.'s No. 23-A Denman	T. D. 1,970 ft.; drlg.
Magnolia Petroleum Co.'s No. 1 M. E. Roamel, J. Robinson Sur.	T. D. 2,408 ft.; cementing cavings.
Simms Oil Co.'s No. 5 Manford, James Hodges Sur.	T. D. 1,200 ft.; drlg. shale.
Sun Oil Co.'s No. 1 Dowdy, J. C. Darst Sur. No. 9	T. D. 2,587 ft.; setting csg.
Sun Oil Co.'s No. 14 Knoblock, midway between Nos. 9 and 2, J. W. Robinson Sur.	T. D. 2,570 ft.; running tubing.

CHAPMAN POOL—WILLIAMSON COUNTY

Collins et al's No. 8 Lawrence, S. Miller Sur.	Rigged up.
Vitex Oil Co.'s No. 8 Kilgore, Simon Miller Sur.	T. D. 1,735 ft.; waiting on cement.
Vitex Oil Co.'s No. 9 Kilgore	Comp. for 40 bbls.
Westbrook et al's No. 8 Simmons	T. D. 1,847 ft.; comp. for 23 bbls.

PETTUS AREA—BEE COUNTY

J. L. Mauldin's No. 1 fee, 1,300 ft. N of S line, 150 ft. E of Medio Creek, Kerr Sur.	T. D. 3,864 ft.; 40,000,000 ft. gas; spraying gasoline.

(Continued on Page 99)

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

ATASCOSA COUNTY

Company, farm and location—	Remarks:
Cullen and Boren's No. 1 Medina Irrigation, W. Klemke Sur. No. 439	T. D. 2,267 ft.; shut down.

BLANCO COUNTY

H. L. Lewis' No. 1 Glasscock, moving in to drill on leases out of the Rodson block north of Blanco City	T. D. 500 ft.; shut down.
Hardy-Sitton's No. 1 McMillan	T. D. 570 ft.; shut down.
Liles-Adams et al's No. 1 Stanford, 150 ft. to S line, 1,420 ft. to E line of James Stanford's No. 155	T. D. 952 ft.; fishing.
McCleary et al's No. 1 Schenling, 900 ft. to SE line, 600 ft. to S line of J. A. Rouse No. 118 Sur., 4 miles SW from Blanco City	T. D. 562 ft.; shut down.
J. R. Meek's No. 1 Walker, 360 rds. from W line, 482 rds. from S line of 375-ac. tract in Sur. No. 32	T. D. 1,025 ft.; fishing.
Page et al's No. 1 Cox, Rutersville College Sur. No. 18	Spudded and shut down.
G. Rosenfield's No. 1 Hohenberger, 800 ft. to W line, 1,250 ft. to N line, Sur. No. 94	T. D. 712 ft.; shut down.

BASTROP COUNTY

Majestic Pet. Co.'s No. 1 J. M. Breeding, 150 ft. from N line, 1,020 ft. from W line of 200-ac. tract, 940 varas from W line, 1,225 varas from S line of M. Andrews Sur., 13 miles W from Smithville	T. D. 375 ft.; standing.
Turner-Whorton and Anderson's No. 1 Harris, Joshua Gray Sur.	Spudded and shut down.

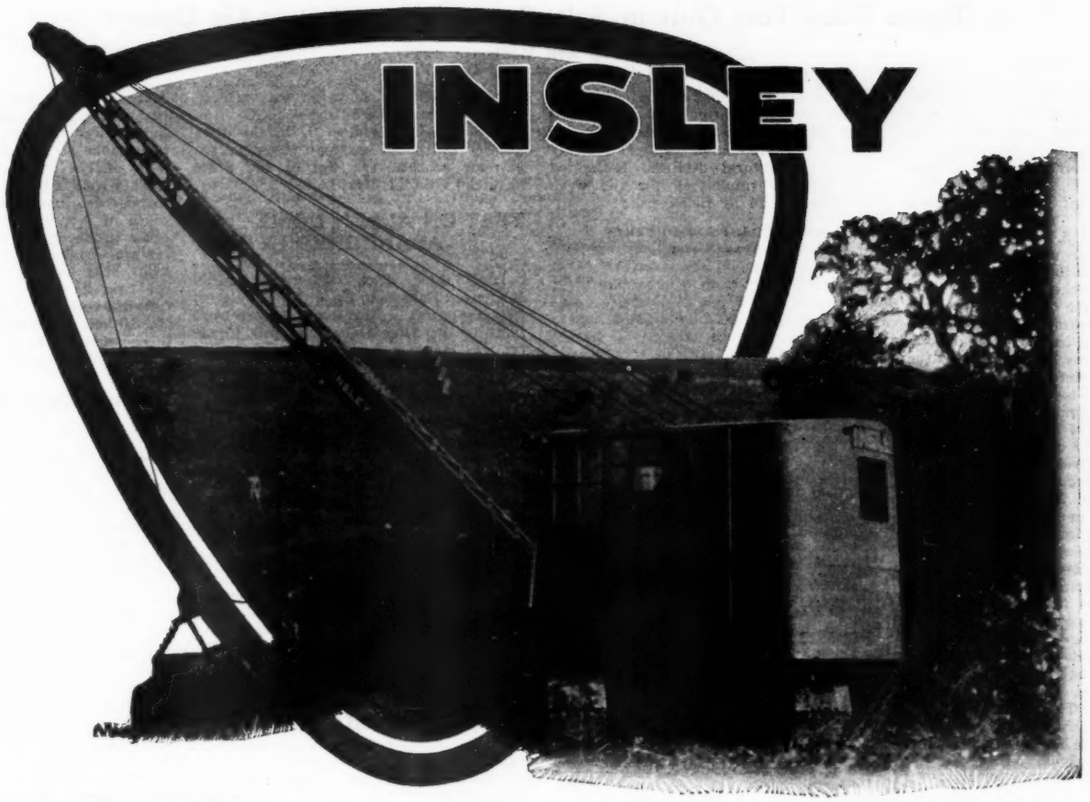
BELL COUNTY

Mildon Oil Co.'s No. 1 J. K. Edds, Maxiano Moreno Sur.	T. D. 400 ft.; shut down.
O. O. Alford and others' No. 2 F. Spankell, W. Woodford Sur.	T. D. 500 ft.; shut down.
J. W. Riley et al's No. 1 J. W. Mosely, Maxiano Moreno Sur.	T. D. 1,190 ft.; shut down; reinstated.

BROOKS COUNTY

Ed East's No. 3 B. Garcia, 150 ft. from N and W lines of Blk. 5, Share A-1, Las Mastena y Gonzalene grant	T. D. 1,002 ft.; standing.

(Continued on Page 99)



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Refugio Deep Wells Being Restricted

Gas Waste Reduced. Rose Dome Test Abandoned. Allen Dome Deep Test Quit in Salt. Sweet Lake Well to Go Deeper

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Mar. 16.—In accordance with previously announced plans, deep wells at Refugio were placed on restricted flow March 10 and will continue that way until March 17. All wells in sands at 5,400 feet and below are now flowing under uniform quarter-inch chokes under the direction of J. B. Moncrief, proration umpire of the Pettus Field. Late in the week no definite information was available as to the effect of this restricted flow. A check of the field was to have been made March 13 but additional gauges will have to be made March 17 and another March 20 to determine the effectiveness of the pinching in of the wells.

Daily average production of Refugio for the week ended March 14 reflected very little change in the oil output but that would be no criterion as the curtailment did not begin until the middle of the week. It has been indicated, however, that a very material reduction has been effected in the amount of gas production. This was the primary purpose of the pinching in of the wells as it had been reported to the State Railroad Commission that upwards of 200,000,000 feet of gas was being wasted daily in the field. The greater part of the waste has been from the deep wells whose oil production has totaled between 17,000 and 18,000 bbls. of the field's approximate 33,000 bbls. daily.

Approximately 60 wells are being affected by the new regulation. A number of these had been on quarter-inch or smaller chokes but many of the wells had been open to a five-sixteenths-inch or even half-inch chokes.

There were no field developments of interest at Refugio the past week and operations consisted chiefly of routine drilling. A total of 26 rigs were running at the close of the week. Interest possibly is centered on Houston Oil Co.'s No. 1-B Rooke, located in the NE cor. of the Rooke 80-acre tract, Thomas McMullen Survey. This test, which is coring in sand below 6,439 feet, is in the extreme southwest end of the field and on the southwest edge of the original 3,700-foot sand area. It is 2,000 feet southwest of the nearest 3,700-foot production and approximately 3 miles from the nearest deep production.

Ed Jones' No. 3 Mitchell, on the southwest edge of the present deep sand area, south of the townsite, late in the week was preparing to test sand and shale at a total depth of 6,422 feet after plugging from 6,486 feet, where it tested salt. Other deep tests, including Luling Oil & Gas Co.'s No. 1 City, Block 86 of the townsite; Moody-Seagraves Producing Co.'s No. 6 Morgan-O'Connor, near the SE cor. of the townsite; T. P. Morgan's No. 1-B St. John heirs, west offset to Moody-Seagraves' No. 1 St. John, a wildcat producer a mile south of the main field; United Production Corp.'s No. 3 Powers, just east of the townsite, and United Production Corp.'s No. 4 Mitchell, south of the townsite, were among other tests preparing to test deep horizons.

Production Down

Production of Gulf Coast Field continued the downward trend the past week, the daily average reflecting a drop of 3,656 bbls. from the preceding seven-day period. The lack of any completions of importance the last several weeks and the failure of Coastal fields to add any material new production is responsible for the decline. The maintenance of Gulf Coast production generally is contingent on the constant addition of new wells and when additional production is not forthcoming the production columns quickly reflect the natural declines. Estimated daily average production for the week ended March 14 by fields was:

GULF COAST PRODUCTION

Texas Coast

Allen	47
Barbers Hill	19,057
Batson	991
Big Creek	2,661
Blue Ridge	1,189
Brenham	65
Boling	778
Clay Creek	2,212
Damon Mound	579
DeWalt	11,840
Esperson	2,425
Fannett	494
Goose Creek	4,266
Hankamer	2,212
High Island	720
Hull	5,295
Humble	9,110
Lost Lake	297
Markham	190
Moss Bluff	344
Mykawa	124
Nash	276
North Dayton	506
Orange	1,845
Orchard	1,813
Pierce Junction	9,894
Port Neches	1,489
Raccoon Bend	9,752
Refugio	32,906
Rockland	8
Saratoga	934
Sour Lake	2,062
South Liberty	2,626
Spindletop	11,613
West Columbia	4,254
Total Texas Coast	144,874
Week ending March 7	147,282
Decrease	2,408

Louisiana Coast

Anse La Butte	50
Bayou Blue	145
Bayou Boullion	136
Black Bayou	949
Edgerly	481
Jennings	721
Hackberry	2,957
Iowa	Shut in
Lake Barre	1,785
Lake Pelto	112
Leesville	24
Lockport	4,630
Port Barre	2,480
Sorrento	37
Starks	748
Sulphur	1,790
Sweet Lake	1,195
Vinton	6,339
Welsh	42
White Castle	986
Total Louisiana Coast	25,607
Week ended March 7	26,855
Decrease	1,248
Total Gulf Coast	170,481
Week ended March 7	174,137
Decrease	3,656

GULF HAS ABANDONED ITS ROSE DOME TEST

HOUSTON, Tex., Mar. 16.—Gulf Refining Co. has abandoned its No. 2-B Buras Levee Board, Section 27-21s-30e, on the Rose Dome (Spanish Pass), in the extreme southern part of Plaquemines Parish. This test was quit in cap rock topped at 2,216 feet and drilled to 2,356 feet, proving the geophysical findings. The dome was checked by seismograph during 1928, although no drilling was done until late in 1930, this test being only the second test drilled.

Both tests drilled on the dome have suffered blowouts. The first, No. 1 Buras Levee Board, blew out at 244 feet, cratered and finally was abandoned at that depth. No. 2-B then was located 200 feet from No. 1, and although it passed that sand safely it encountered a second shallow sand at 835 feet, flowing out and making an estimated 50,000 feet of gas daily with about 10,000 bbls. of salt water. The latter, however, was successfully killed and the hole deepened.

Location of this dome is in the delta district of the Mississippi River in the extreme southeastern top of the State near the Gulf of Mexico.

TEST ON ALLEN DOME ABANDONED IN SALT

HOUSTON, Tex., Mar. 16.—Mills Bennett Production Co.'s No. 2 Reese, first deep test drilled on the northwest flank of the Allen Dome, Brazoria County, was abandoned in salt at 5,583 feet late in the week. Salt was topped at 4,809 feet. Stuck drill stem prevented further drilling although the test was located and drilled with a view toward making an attempt to drill through a possible "overhang."

This test, however, drilled through a cap rock overhang from 1,200-2,685 feet and went back into formation, in which it continued until the present salt was encountered.

The same company's No. 2 Random on the southeast flank of the dome also is having difficulty with stuck drill stem in heaving shale at 5,308 feet. This test also drilled through an overhang of alternating cap rock and salt from 1,190 feet to 1,822 feet.

KILL SWEET LAKE WELL AND WILL DRILL DEEPER

HOUSTON, Tex., Mar. 16—Not satisfied with the showing made by its No. 10 Yount Lee Oil Co., Sweet Lake, Cameron Parish, Pure Oil Co. has killed the well and is pulling screen and liner to drill deeper. The well was completed March 7 and flowed 214 bbls. net oil, 25 per cent of the total fluid being water, in the first 11 hours on a three-eighths-inch choke as reported in the March 12 issue of The Oil and Gas Journal.

This well is in a sand at 6,805-30 feet, the deepest in the field, and is 700 feet south of No. 9 Yount Lee Oil Co., the other producer in the horizon. The latter was completed last August, flowing 1,357 bbls. on a three-eighths-inch choke the first 24 hours and since has maintained a constant flow around 1,100 bbls. No. 10 had a pressure of only 220 pounds in contrast to the usually high pressures of other wells in the field.

GOOD PIERCE JUNCTION WELL

HOUSTON, Tex., Mar. 16.—Moody Corp. (Superior Oil Corp.) got a good well in its No. 1 Boyles, northwest flank of Pierce Junction, which was completed in the new 4,500-foot horizon flowing an estimated 800 bbls. daily. This is an old well deepened following the new activity under way in that area. Of particular interest in this area is Warner-Quinlan's No. 2 Minchen which is in a sand showing oil at 4,200 feet with 6⅝-inch casing at 4,170 feet. The latter, if a well, will mark a further extension of the area to the west and north.

SIXTH VICTORIA COUNTY TEST

HOUSTON, Tex., Mar. 16.—Location for the sixth test in the Bloomington-Marianna district of southwestern Victoria County was made the past week in Lion Oil & Refining Co.'s No. 3-A McFaddin, M. Traviesa Survey, 925 feet northeasterly along an extended line from

GULF COAST FIELDS AND WILDCATS

Week Ended March 14

All Rotary

BARBERS HILL—CHAMBERS COUNTY

Mills Bennett Prod. Co.'s No. 1-B Barber, north ..... Oil sand 5,294-5,320 ft.; set screen; swabbing.
Mills Bennett Prod. Co.'s No. 5 Higgins, southeast ..... Drlg. broken shale 5,231 ft.
Mills Bennett Prod. Co.'s No. 2 Gulf-Fisher, Wm. Bloodgood Sur., 400 ft. from S line and 50 ft. from W line lease (workover) ..... Drlg. shale and lime 4,943 ft.
Humphreys Corp.'s No. 2-B Barber, north ..... Drlg. shale and lime 3,493 ft.
Humphreys Corp.'s No. 1 Louise Fitzgerald, north ..... Drlg. shale and sand 5,228 ft.
Humphreys Corp.'s No. 2 Wilburn, southeast ..... Drlg. shale 4,386 ft.
Humphreys Corp.'s No. 1 Lula Barber, west flank, W. D. Smith Sur., 50 ft. from N line and 50 ft. from E line of tract ..... Drlg. rock 4,420 ft.
Humphreys Corp.'s No. 1 E. H. Winfree, west flank, W. D. Smith Sur., 50 ft. from S line and 75 ft. from W line of tract ..... Drlg. pyrites and sand 4,086 ft.
Humphreys Corp.'s No. 2 E. H. Winfree, west flank, W. D. Smith Sur., 50 ft. from W line and 478 ft. S line 10-acre tract ..... Drlg. lime 3,101 ft.
Humphreys Corp.'s No. 3 E. H. Winfree, west flank, W. D. Smith Sur., 264 ft. from S line and 50 ft. from W line of 10-acre tract ..... Drlg. gumbo 1,189 ft.
Humphreys Corp.'s No. 4 E. H. Winfree, west flank, W. D. Smith Sur., 50 ft. from W line and 617 ft. from S line 10-acre tract ..... Derrick.
McAlbert Oil Co.'s No. 8 Woodward, east flank ..... Rig standing.
Rio Bravo Oil Co.'s No. 2 Fisher, west flank ..... Drlg. rock 3,943 ft.
Sun Oil Co.'s No. 8 Chambers, south ..... Drlg. sand and shale 3,420 ft.; bottom salt 3,189 ft.
Sun Oil Co.'s No. 4 McKinney, east flank, Wm. Hodges Sur., 100 ft. W of No. 3 and 40 ft. from N line of tract ..... Drlg. shale 5,655 ft.
Sun Oil Co.'s No. 1 Smith, west ..... Drlg. hard sand 4,998 ft.
Sun Oil Co.'s No. 14 Wilburn fee, east ..... Drlg. rock 1,387 ft.
The Texas Company's No. 1 Williams, south west ..... Hard sand showing oil 6,965 ft.; cmtd. 4½-in. csg. 32 ft. blank and 74 ft. screen on bottom.
The Texas Company's No. 2 Winfree, west flank, W. D. Smith Sur., 264 ft. N, 50 ft. W at right angles out of SE cor. of lease ..... Drlg. hard lime 3,324 ft.
The Texas Company's No. 3 Winfree, west flank, W. D. Smith Sur., 478 ft. N and 50 ft. W at right angles out of SE cor. of lease ..... Drlg. hard lime and pyrites 4,027 ft.
The Texas Company's No. 5 Wilburn, east flank, Wm. Hodges Sur., 400 ft. SW of No. 4 Wilburn and 50 ft. from SE line of lease ..... Derrick.
Yount Lee Oil Co.'s No. 10 Woodward, southeast ..... Coring sand 5,678 ft.
Yount Lee Oil Co.'s No. 16 Chambers, Wm. Bloodgood Sur., 50 ft. from W line of tract in line with Nos. 15 and 12 (workover) ..... Drlg. hard lime 4,929 ft.
Yount Lee Oil Co.'s No. 18 Chambers, south flank, Wm. Bloodgood Sur., 100 ft. N Sun Oil Co.'s No. 7.. Sand and shale showing oil 4,373 ft.; cmtd. csg.

(Continued on Page 102)

the northeast corner of the C. O. Edwards Survey and 430 feet northwesterly at right angles. This location is some distance east of the two wildcat gas wells, No. 1-A and 2-A, completed by the Lion company late in 1930 and taken over by United Production Corp., and between them and United Production Corp.'s No. 1-B McFaddin, now drilling around 1,800 feet. Lion and United own jointly this block, consisting of the "A" and "B" leases, the latter assuming development for gas with Lion retaining the right to drill for oil. The Texas Company's gas well, No. 2 McFaddin, 3½ miles to the west of United and Lion's gas wells, still is shut in.

YOUNT LEE CO. BUYS HIGH ISLAND PROPERTY

HOUSTON, Tex., Mar. 16.—All holdings of Marrs McLean in the High Island Field of Galveston County, Texas, have been purchased by the Yount Lee Oil Co. of Beaumont, Tex., it was made known here today. The deal involves a consideration of $2,500,000, of which a reported $600,000 was given in cash, the remainder to be paid in oil and overriding royalties.

The McLean properties, totaling 1,400 acres, included six producing wells, of which two at present are shut down. The acreage is chiefly on the Cade land in the N. Fitzsimmons Survey.

Marrs McLean and the Gulf Production Co. have been the principal operators at High Island, a salt dome located directly on the beach of the Gulf of Mexico. The field has a production of around 700 bbls. daily.

NEW TEST AT MYKAWA

HOUSTON, Tex., Mar. 16.—Following the abandonment early the past week of Humble Oil & Refining Co.'s No. 4 Minnetex, center of the south half of block 259, William J. Lovett Survey, Mykawa torsion balance prospect, Harris County, location has been made for another test, No. 6 Minnetex, center of Lot 254. Location for No. 5, Lot 251, was made early in January but has been standing. The location of No. 6 is some distance to the east of No. 3 Minnetex and the No. 1 Gehring, the two oil producers in the field. No. 4, a south offset to No. 3, was abandoned in heaving shale at 6,504 feet. The two producers are in a 4,900-foot horizon.

LONG STRING OF CASING

HOUSTON, Tex., Mar. 16.—One of the longest strings of 9⅝-inch casing on record in the Gulf Coast was set successfully the past week by Vacuum Oil Co. in its No. 9 Bordages. The pipe was cemented at 6,495 feet preparatory to a test of an oil showing at a total depth of 6,522 feet.

CLAY CREEK DOME WELL

HOUSTON, Tex., Mar. 16.—Another small well was brought in on the Clay Creek Dome of northwestern Washington County in Sun Oil Co.'s No. 2 C. H. Marcus, J. F. Perry Survey, and 200 feet from the north line of the tract and in the center east and west. This well set 216 feet of 4½-inch screen in sand at 1,240 feet and flowed at the rate of 115 bbls. daily.

DRY HOLE IN AUSTIN COUNTY

HOUSTON, Tex., Mar. 16.—H. R. Fannigan and associates' No. 2 Dietrich, T. Bell Survey, Austin County, and a quarter mile to the west of the Raccoon Bend Field developed by the Humble Oil & Refining Co., was abandoned as dry at 3,852 feet, thus failing to extend the oil-producing horizons of that field.

The same operators' No. 1 Dietrich, located 75 feet southwest of No. 2, the present test, was completed last December as a gas well in the shallow Raccoon Bend gas horizon. No. 2 had a show of gas at 1,036 feet but passed that up in an attempt to pick up the Raccoon Bend oil horizons. Humble Oil & Refining Co.'s offset, No. 1 Martha Remmert, location for which was made early in January, has not been drilled.

Two other tests, one shallow and the other deep, were abandoned at Raccoon Bend. Humble's No. 11 Payne, south offset to No. 12 Thompson, a producer, was dry at 3,679 feet, while No. 8 Payne was quit at 1,126 feet.

MOODY-SEAGRAVES OFFICES

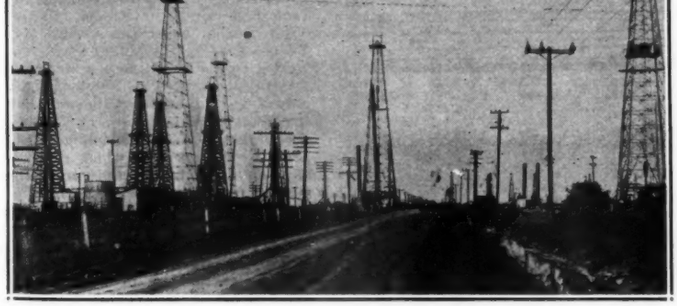
HOUSTON, Tex., Mar. 16.—Removal of the main offices of the Moody-Seagraves Producing Co. and the Moody-Seagraves-Morgan interests from San Antonio to Houston is being made this week. These companies have taken a five-year lease on an entire floor in the Neils Esperson Building. The move provides a greater centralization of executive offices of the various Moody-Seagraves holdings, among which is the Cranfill-Reynolds Co., with headquarters in same building.

DETERDING BUYS FARM

Sir Henri Deterding, head of Royal Dutch-Shell petroleum companies, is reported to have bought a large farm in Germany, 30 miles south of Hamburg. Potash deposits are said to exist in the vicinity.

DEATH OF H. J. CARR

Herbert J. Carr, treasurer of the Amerada Corp., died March 13 in London, England. He was the organizer of Carr Brothers, commission agents of New York City, and a director of Anglo-Mexican Petroleum Co.



View of portion of new drilling activity on extreme northwest flank of the Pierce Junction Dome, Harris County, Texas, where a series of good wells are being brought in from a deep sand between 4,100 and 4,500 feet. At the right is Navarro Oil Co.'s No. 2 Perry, center of Block 46, B.B.B.&C. Survey No. 1,028, a 1,000-bbl. well at 4,341 feet, which was killed and now is drilling deeper in search of the 4,500-foot production. In the center, in the railroad right of way, is Rio Bravo Oil Co.'s No. 102 G.H.&S.A., now drilling, and at the right, Moody Corp.'s Boyles operations, Warner-Quinlan Minchen tests and in the right background Gulf Production Co.'s Manchester rigs.

ALPENA COUNTY, NORTH MICHIGAN, IS LATEST AREA TO BE GIVEN TESTS

By Paul A. Elliott

MUSKEGON, Mich., Mar. 16.—Alpena County, in the northeastern section of Michigan on the upper edge of the bowl or platter of geological formations which underlie the entire State, will be the scene of the newest drilling operations. The Exploration Co., whose backers are Detroit business men, will drill three tests on 35,000 acres of leases held. T. K. Buzard, former Muskegon and Mount Pleasant contractor, is moving a rig for the first test.

The Exploration Co. plans to drill one or more deep tests where a geologist's report says five possible productive sands are within less than 4,000 feet drilling depth. The Dundee, biggest producer in the Muskegon and Mount Pleasant Fields, is found at a comparatively shallow depth in Alpena County where the Trenton limestone is said to lie at about 3,750 feet. The Exploration Co. attempted development of the Alpena region in 1929 when it put down a test to about 1,500 feet. A show of oil was found but not enough for commercial production. Officers of the company are: President, H. A. Stormfeltz; vice president, E. A. Loveley; secretary, James J. Spillane, and treasurer, W. J. Scheifele. J. M. Deune is an additional director.

In Monroe Area

Renewed activity in the Monroe area of southeastern Michigan is indicated in filing of articles by the Monroe Oil & Gas Co. Incorporators are: Alfred Violette and Buel B. Shultz, of Detroit, and Frank H. Clark of Belleville. The company proposes to confine its operations to Augusta Township, Washtenaw County. Considerable oil has been found in several wells in this locality in the Trenton limestone at about 1,850 feet.

A small Monroe gas well in the proved Muskegon Field and a dry hole in Newaygo County were the only completions in Michigan for the week with the exception of the Muskegon Deep Well Syndicate's No. 5 Herman Heinz, the first real deep test in the field, which will be plugged.

The Muskegon Development Co.'s No. 1 Toppen, SW NE, Section 9-10n-16w, Muskegon Township, made 60,000 feet from the Monroe pay after two shots of 20 quarts each. Gas was struck at 2,218-24 feet and drilling was completed at 2,236 feet. It was the second well completed recently as a dry Monroe gasser on the river flats.

H. C. Nelson's No. 1 George T. Rose, SE NE NE, Section 25-12n-18w, White River Township, Muskegon County, has been completed at least temporarily as a red rock test. It is understood Mr. Nelson plans to drill several more tests and take the one seemingly best on the structure to deeper levels.

Henry Carpenter, a Muskegon contractor, has taken over operations on the White River Oil Corp.'s No. 5 on the William Lipka lease, N NE SE, Section 19-12n-17w, Montague Township, and is deepening it to the Dundee.

Drill pipe is about landed on H. and W. Feicke's No. 1 Feicke, SE SW, Section 1-11n-17w, Fruitland Township, Muskegon County. W. E. Cooke is in charge.

Newaygo County

The Butler Syndicate's No. 1 Ardell E. Douglass, NW NW, Section 26-13n-12w, Everett Township, Newaygo County, will be abandoned as a duster at least to the upper Traverse.

Livingston County

The Hillmur Oil Co. of Lansing decided to hold its acreage in Livingston and perhaps drill a test or two during the summer. Three wells already have been drilled without success.

WILDCAT OPERATIONS IN MISSISSIPPI

Company, farm and location—	Remarks—
CLARK COUNTY	
Gulf Ref. Co.'s No. 1 Box, 526 ft. W, 498 ft. N, C SE, Sec. 11-2n-15e	Set 10-in. 922 ft.
CLAY COUNTY (Cable tools)	
Ohio Oil Co.'s No. 1 Cantrell, NE cor., Sec. 16-15-5	Set 9⅝-in. 2,929 ft.
COVINGTON COUNTY	
United Prod. Co.'s No. 1 McIntosh (was S. P. Borden et al's), 330 ft. S, 330 ft. W, NE cor. SW NE, Sec. 8-8-16	Dry and abd.
GRENADA COUNTY	
Carter-Pace's No. 1 Dubard (was F. E. West et al's), NW NW, Sec. 18-22-4	Drlg. 400 ft. in Tuscaloosa.
HINDS COUNTY	
Attkisson & Dyer's No. 1 Downing et al, SE NE, Sec. 27-6-1	Cmtd. 10-in. 747 ft.
Cane River O. & G. Co.'s No. 1 Kabbles, NE cor. SW SW, Sec. 15-5-1e	Temp. abd. 3,270 ft.
Gulf Ref. Co.'s No. 1 McLaurin, 1,230 ft. S, 1,410 ft. W, NE cor., Sec. 30-6-2e	Drlg. chalk 2,835 ft.
Howard Oil Co.'s No. 1 Jackson College, C NW NW, Sec. 9-5-1e	Drlg. 250 ft.
Industrial G. & E. Co.'s No. 1 Ill. Central R.R., 2,400 ft. E, 100 ft. S, C, Sec. 4-5n-1e	Began drlg. Mar. 6; spudded 15 ft. and S.D.
Southern Pet. Co.'s No. 1 Wilson (was Tri-State O. & G. Co.'s), 320 ft. E, 240 ft. N, SW cor. SE NE, Sec. 28-6-1e	S.D. 20 ft.
JASPER COUNTY	
Bay Springs Pet. Co.'s No. 1 Keys, C NW NE, Sec. 21-2-10	Drlg. 500 ft.
LAFAYETTE COUNTY	
Banks-Good et al's No. 1 May, 113½ rds. S, 26 rds. E. NW cor. SW, Sec. 32-10-1w	Derrick.
MADISON COUNTY	
Central O. & G. Co.'s No. 1 Cameron, 200 ft. W, 200 ft. N, SE cor., Sec. 11-9-1e	Run D.S. test unsuccessfully; T.D. 3,320 ft.
MONROE COUNTY	
Amory Dev. Co.'s No. 1 Bourland, Sec. 2-13-19	W.O. 3,007 ft.
Amory Pet. Co.'s No. 1 Harris, SW cor. SE SE, Sec. 13-13-7	Drlg. green shale 2,185 ft.
Park Bowser et al's No. 1 Cowart, second hole, Sec. 2-12-9	S.D. 1,830 ft; fishing.
RANKIN COUNTY	
Attkisson & Dyer's No. 1 Valentour, 200 ft. S and 200 ft. E, NW cor., Sec. 18-5n-2e	Derrick.
Grandstaff et al's No. 1 Carr, 2,780 ft. W, 550 ft. N, SE cor., Sec. 12-5n-1e	Derrick.
R. A. Moore et al's No. 1 Interior Lbr. Co., Sec. 28-6-1e	S.D. 900 ft.
Cleve Love's No. 1 Muse, SE cor. SW SW, Sec. 32-7-4e	S.D. 2,208 ft.
Millstein O. & G. Co.'s No. 1 Gammill-Hartsfield, 400 ft. E, 400 ft. N, SW cor. SW SE, Sec. 6-5-2e	W.O. 2,503 ft.
SMITH COUNTY	
Pocahontas Nat. Gas Co.'s No. 1 Adams-Banks Lbr. Co., C NE SW NW	Drlg. 1,060 ft.
WARREN COUNTY	
Dixie Pet. Co.'s No. 1 Clark, 300 ft. E, 660 ft. S, NW cor., Sec. 31-17-5	Drlg. 2,264 ft.
WINSTON COUNTY	
Miss. Drlg. Co.'s No. 1 Scarbrough, NW cor., Sec. 15-12-14	Drlg. 2,517 ft.
YALOBUSHA COUNTY	
Collett-Carter Oil Co.'s No. 2 Blackmur, 990 ft. W, 285 ft. N, C, Sec. 14-11-4	Drlg. roller bit 2,543 ft.

California Bill Prohibits Crude Oil Waste

Covers Wasteful Operation and Economic Loss Through Overproduction. Right to Curtail Upheld in Court

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Mar. 14.—California has not yet passed the crisis precipitated by the drastic reductions in crude and refined oil prices and the final outcome is still in doubt. The seriousness of the situation should not be underestimated as it is a foregone conclusion that crude oil prices will be further reduced if the existing gasoline price war continues unabated. No efforts are under way to terminate hostilities. Major companies have regained most of the gallonage lost to the so-called independent group but it is doubtful if any consolation is secured from this angle as gasoline is being sold below cost at several points on the Pacific Coast. On the basis of present tank wagon prices in Los Angeles territory, 8½ cents per gallon, refiners are losing from 1 to 2 cents on every gallon of gasoline sold.

The chaotic condition is making it doubly hard for the umpires to secure effective curtailment, as a number of producers are unwilling to continue curtailment work. There will practically be no price for crude oil if the lid is blown off. Producers of crude oil are urged to sit tight for the time being, as a determined effort will be made to stabilize production by legislative action. If operators can agree on suitable legislation it will be passed without opposition and put into effect with an emergency clause so no time will be lost.

Action to ameliorate existing conditions has already been begun in the legislature as an amendment to Senate Bill No. 362 introduced by Senator Sharkey. This is an act to prohibit the waste of crude oil in California and provides a definition of waste, the creation of an oil conservation commission and requires producers of crude oil and owners and operators of storage facilities to make and file certain reports under exacting penalties. It declares the production of crude oil under such conditions as to constitute waste is opposed to the public interest and thereby definitely prohibited.

Definition of Waste

Waste is defined as "to include underground waste or destruction without beneficial use, surface waste or destruction without beneficial use, waste by reduction of the total quantity of recoverable crude oil in any underground source of supply by the careless or improper drilling or operation of wells and the waste incident to or resulting from the production of crude oil when the current production, together with the amount of crude oil and its products in storage, exceeds the current requirements for use within and for shipment to points without the State, and for the maintenance in storage of such reserves of crude oil and its products as are reasonably necessary to meet and insure the continuity of an adequate supply of crude oil and its products for such current requirements. The loss by evaporation or leakage and the increased hazard of loss from fire and other causes resulting from the storage of crude oil and its products in excess of the quantities which are reasonably necessary to insure continuity of an adequate supply for such current requirements is waste within the meaning of this act."

Powers of Commission

The oil conservation commission, charged to carry out the bill's provision, is required "to inquire into the production of crude oil in California and the extent of current requirements for use within and for shipment to points without the State and of requirements for the maintenance in storage of such reserves as are reasonably necessary to meet and insure the continuity of an adequate supply of crude oil and its products for such requirements in order to enable it to determine whether or not waste as hereinbefore defined exists. For this purpose the oil conservation committee shall have the power and it shall be its duty to adopt such rules and regulation as shall enable it to ascertain all the facts upon which the proper and adequate enforcement of this act shall depend. Said commission shall have the right to require any producer of such crude oil or any operators of any drilling or producing well to make and file sworn statements of production or facts concerning any wells under their control whenever and as often and for such periods as it may specify and such wells may be inspected or gauged and the production therefrom gauged in such manner and under such rules and regulations as may be prescribed by said commission. The oil conservation commission shall likewise have the power to require owners and operators of any storage facilities of crude oil or its products in California to make and file sworn statements regarding the same and the quantity or quality of the oil or its products in storage in such manner and to such extent as shall be prescribed by said commission by rules and regulations or by specific order in the performance of its duties under this act."

Section 5 of Senator Sharkey's bill provides operators and refiners the privilege of appealing from any decision of the commission and gives the oil conservation commission authority to institute such court action as may be necessary to compel adherence to the rules and regulations prescribed. Briefly, it provides that "upon complaint of the oil conservation commission or verified complaint of any producer of crude oil or upon complaint of the director of natural resources that waste of crude oil as hereinbefore defined is being committed in the State it shall hold a hearing in one of the counties in which it is alleged that such waste is being committed to determine whether or not such waste is actually being committed. The Superior Court in and for the county or city and county in which any hearing may be held under the authority of this act shall have power to compel the attendance of witnesses, the giving of testimony and the production of papers as required by any subpoena issued hereunder."

Wasteful Production

Section 6 provides that "if upon the hearing the commission finds that waste is being committed and if such waste be incident to or result from the wasteful production of crude oil the commission shall make an order fixing therein the amount of nonwasteful production for the State of California and for the several fields within the State respectively found to be contributing to such waste and for each such field fixing the amount of allowable production for the several zones producing properties and wells in such fields so as to stop said waste. The aggregate amount of production without waste and so determined shall be so allocated by the commission among the different fields and the different zones, properties and wells in the respective fields as to avoid a dimunition in the total amount of crude oil ultimately recoverable from any field, zone, property or well."

The bill also provides that "if and when any order shall be made by the commission fixing the quantity of allowable production from any oil-producing property within the State and notice thereof shall have been given if thereafter any person, firm or corporation operating any such property shall produce therefrom a quantity of crude oil in excess of the quantity allowed to such property under said order of the commission either under a stay of the order by any court proceeding or otherwise and such order shall be held valid and enforceable by a court of competent jurisdiction the well or wells on said property shall be entirely closed in until such time as the amount which said well or wells could produce under the order equals the amount theretofore produced in excess of the amount allowed by said order. Thereupon such wells may be restored to production upon the basis allowed by such order."

"Any producer of crude oil or the operator of any drilling or producing well or owner or operator of any storage facilities of crude oil or employe thereof who refuses to permit the commission or its representative to inspect same and every person, firm, association, corporation, trust or syndicate, whether as principal, agent, servant, employe or otherwise failing or neglecting or refusing to furnish any report or record or statement which may be required pursuant to the provisions of this act or who wilfully renders or furnishes a false or fraudulent report or statement or record is guilty of a misdemeanor.

Selection of Commission

Senator Sharkey's bill as it is now constituted provides for the creation of an oil conservation commission consisting of three members, one of whom will be chosen for a term of two years, one for a term of three years and one for a term of four years. It provides that the election of members to the commission will be the result of a vote of the five boards of district oil and gas commissioners who are in turn elected by producers on the basis of assessment returns. The selection of the commissioners, comprising the oil conservation commission which will be charged with enforcement of this legislation, may be challenged as a number of operators are in favor of a different procedure. Some want the governor to appoint an impartial commission who will not have any connection with the present Department of Natural Resources or State Mining Bureau. Others are agreeable to have the state railroad commission handle the matter or appoint a subcommittee to take care of the necessary details. Independent producers and major companies are attempting to agree on a definite procedure to be followed along this line, as all are seeking an impartial commission which will function fairly and effectively. Another little difference of opinion exists as to the advisability of specifically limiting the production of crude oil in California averaging in excess of 35° A.P.I. This feature some would like to see incorporated in the measure in order to prevent Kettleman Hills, Belridge and other prolific high gravity fields from dominating the production situation during the next several years. It is proposed to limit the production of 35 gravity oil and above to not exceed 10 or 15 per cent of the State's production. These features have not yet been worked out but will undoubtedly receive careful consideration before Senator Sharkey's bill is reported out of the committee to which it was referred shortly after introduction. This bill is not designed as a panacea for all the ills which confront the oil industry on the Pacific Coast but it is believed, if properly enforced, it will provide the basic foundation for additional legislation at some future date.

Legal Right to Curtail

Superior Judge Leon Yankwich, in a decision rendered a few days ago, upheld the right of The Texas Company to curtail production in the Mount Poso Field of Kern County in conformity with the state-wide curtailment program. This suit, instigated by The Texas Company to prevent the lessors, Alta Vedder and Dwight Vedder, from cancelling a lease on the Vedder property at Mount Poso, was of vital concern to all lessees who have curtailed production as it sanctions this procedure. In his decision, Judge Yankwich found that "the standard of diligence is not violated when restrictions are imposed by the operator which result from his inability to find a ready or profitable market for his product. The only criticism heard at the trial was the intimation that perhaps the curtailment should be exercised through complete stoppage of exploratory or wildcat drilling rather than by curtailment of fields of settled production." Judge Yankwich also held that even though the Cartwright Anti-trust Act may be violated by the agreement of oil companies to curtail this cut does not constitute a breach of the lease. He held that violation of this act would be only the basis of a criminal prosecution and cannot deprive the company of

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	.....	77,405
Fuel oil	.....	.....	.....	.....	.....	71,950
Diesel and gas oil	.....	.....	.....	.....	606,369	910,818
Gasoline	209,441	29,920	265,485	37,926	2,679,617	3,721,855
Coastwise—						
Crude oil	431,625	61,661	402,000	57,439	3,162,903	2,951,030
Fuel oil	266,978	38,140	295,559	42,223	3,198,981	3,286,181
Diesel and gas oil	14,932	2,133	56,593	8,085	345,780	378,089
Gasoline	204,317	29,188	203,062	29,009	2,117,007	2,077,907
Kerosene	12,721	1,817	.....	.....	76,002	17,801
Exports—						
Crude oil	134,726	19,247	10,001	1,429	1,339,282	1,344,345
Fuel oil	378,684	54,098	375,644	53,663	3,045,185	3,020,882
Diesel and gas oil	129,947	18,564	59,501	8,500	706,278	1,108,150
Gasoline	167,957	23,994	284,720	40,674	1,933,490	2,873,278
Kerosene	41,678	5,954	.....	.....	216,432	666,704
Lubricants	.....	.....	.....	.....	.....	5,057

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC, GULF COAST PORTS

Diesel and gas oil	.....	.....	.....	.....	.....	88,280
Gasoline	.....	.....	.....	.....	63,975	285,245
Lubricants	.....	.....	.....	.....	11,000	.....
Coastwise—						
Fuel oil	180,962	25,852	90,080	12,869	787,958	611,844
Diesel and gas oil	.....	.....	.....	.....	5,213	61,986
Gasoline	44,911	6,417	42,518	6,074	467,199	968,580
Kerosene	.....	.....	.....	.....	16,877	93,814
Exports—						
Crude oil	.....	.....	.....	.....	6,010	3,075
Fuel oil	.....	.....	.....	.....	63,610	122,143
Diesel and gas oil	.....	.....	.....	.....	113,156	124,540
Gasoline	87,650	12,521	.....	.....	405,922	690,185
Kerosene	.....	.....	.....	.....	190,412	133,749

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its right to curtail wells under common agreement. One of the most deciding features of the decision was the decision of Judge Yankwich that the lease is silent on the manner of operation after oil is discovered, although the company is required to pursue its operations in a reasonable manner. He cited a federal case which holds that no obligation rests on the operator to carry operations beyond the point where they will be profitable to him even if some benefit to the lessor should result from them.

Fewer Completions

Completions in California during the past several weeks have been less frequent than heretofore due to a substantial reduction in drilling wells and a check indicates the probability of a further reduction. During the past several years most of the completions chalked up have been in Los Angeles Basin fields but the scene of operations will probably switch to the San Joaquin Valley, at least for the next several months. Drilling operations at Kettleman Hills, Belridge and in the Weed Patch area should result in the completion of a number of new wells during the rest of this year. Ventura Avenue will also contribute its usual quota of completions from time to time but work in this area is of a routine nature and regulated so that it does not cause any serious overproduction. Playa Del Rey and Long Beach are slowly but surely passing out from a drilling standpoint, although new wells will be spudded in from time to time. Other settled fields are expected to minimize drilling, with new wells being started occasionally, depending on lease requirements. Huntington Beach may possibly be an exception due to the possibility of an intensive town-lot drilling campaign in the subdivided area along the ocean front. Several wells, including W. E. McCaslin's No. 17 Transport, No. 1 Fee and No. 2 Gillette of the Superior, Barry Oil Co.'s No. 5 Huntington, Baldwin Oil Co.'s No. 1 Townsite and several former upper zone producers of the Wilshire Oil Co., are either already making hole or being prepared for deepening to the deep zone believed to have been found by the Superior Oil Co. a short time ago.

Playa Del Rey

C. Ed Lewis' No. 6 Wolfe was the best well finished in the Playa Del Rey Field of Los Angeles Basin during the week as this project, bottomed at 5,852 feet and finished with a 6⅝-inch water string landed at 5,544 feet and a 4¾-inch liner including 298 feet of perforated, came in under a natural flow doing 1,030 bbls. of clean 24.1 gravity oil per day. Sovereign Oil Co.'s No. 11 Venice, another new well, was good for only 340 bbls. of clean 24.2 gravity oil per day. This well was completed at 6,152 feet and finished with a 7-inch water string set at 5,967 feet and a 4¾-inch liner carrying 220 feet of perforated. During the next several days additional completions are expected in the Playa Del Rey Field by S. S. Wortley, Senator Oil Co., Pacific Shore Oil Co. and the Unity Oil Co. Daily production at Playa Del Rey reached a low of 28,785 bbls. per day late this week and is expected to go lower during the next 10 days. Union Oil Co.'s No. 1 Vidor, an outpost in the extreme eastern end of the field, about 3,000 feet from the nearest production, has taken on a somewhat doubtful aspect as the bit at 3,750 feet is already below the point at which the upper, or Del Rey, zone is encountered in the old section.

Long Beach

There were only two wells finished in the Long Beach Field during the week and both required the installation of compressors. McFarland Syndicate's No. 2 Signal, bottomed at 5,857 feet with a 5¾-inch water string cemented at 5,385 feet, registered an initial daily production of 310 bbls. of 27.2 gravity oil on a compressor. Shell Oil Co. added another well by completing No. 12 Patton Wilson doing 265 bbls. on a compressor. This well was finished at 7,300 feet and has an 8⅝-inch water string cemented through perforations at 6,402 feet. Two new wells were located at Long Beach, Hancock Oil Co.'s No. 23-A and Dabney-Johnston's No. 84, and both will begin making hole shortly.

Rosenberg & Robbins are surveying No. 7 Monrovia to correct any deviation from the vertical preliminary to carrying it down for a conclusive test in the Inglewood Field. These operators may be able to develop commercial production in either the second virgin zone at Inglewood or pick up a deeper zone. The well is at the edge of the Inglewood Field but might be made into a commercial producer in lower horizons by placing a whipstock in the bottom of the hole and projecting the bit toward the apex of the structure. Work of this kind has been perfected to such an extent that it is fairly easy to orient the drill pipe and deviate the bit in any direction necessary. The outcome will be watched with interest because it might result in one or two offsets. The Exeter Oil Co. recently acquired 40 acres on the southwest flank of the Inglewood Field and has tentatively made arrangements to make a bid for deep production. It is not likely that either well will precipitate deep zone exploitation at Inglewood in view of present conditions as the acreage is all held in large blocks. The Standard is running four strings in the West Coyote Field of Los Angeles Basin and will probably spud in another well on the Emery lease within 10 days. This work is being undertaken both as a means of providing work for the company's drillers and field staff and for determining the extent and productivity of the 99 zone and another productive horizon discovered below that zone last year.

Kettleman Hills

With April 1 near, the Kettleman North Dome Association is completing final preparations to assume control of acreage under its jurisdiction in the North Dome with as little delay as possible. The association begins functioning as a unit on April 1 following cancellation of the existing curtailment agreement by Secretary of Interior Wilbur March 31. The association has issued a number of orders to operators authorizing them to resume drilling on wells which have been standing suspended for practically a year in conformity with the curtailment agreement promulgated by the Department of Interior. Within a short time after it begins functioning, the Kettleman North Dome Association will be obliged to construct a tank farm, pipe line facilities and other necessary equipment. Offices have just been opened in the Richfield Oil Co. Building in Los Angeles and a budget has been adopted for current expenses and expansion work necessary in the field. The association will go along slowly, although tentative plans call for the immediate erection of four 55,000-bbl. tanks which will be necessary to facilitate distribution of production. Because of the inability to foresee the area in which drilling will be centralized, as this is dependent upon a number of variable factors, it may be several months before any definite program for drilling and production activities is outlined. Gas production of the North Dome has declined to 391,000,000 feet daily, reducing the wastage to approximately 200,000,000 feet per day. Present production is coming from eight wells, the two largest gas producers being the Standard's No. 8 in Section 1-22-17 and No. 81 in Section 11-22-17 with a current production of 81,900,000 feet and 82,400,000 feet, respectively. Continental's No. 8 Elliott in Section 12-22-17 is next in line with a current daily production of 79,600,000 feet, followed by Superior's No. 1 Huffman producing 79,500,000 feet. Petroleum Securities picked up the top of the brown shale in No. 1 Burbank in the middle dome at 5,427 feet. This well, together with Standard's No. 6 in Section 29-23-19, will be watched because of the possibility they may prove prolific Temblor production in the middle dome.

Lost Hills-Belridge

The Belridge Oil Co.'s deep zone dis-

(Continued on Page 105)

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Olympic Realty Corp., No. 1 Barnes, Los Angeles Co. ..	14- 2-15	4,875	redrilling
Hines Pet., No. 1 Ocean Park, Los Angeles Co.	9- 2-15	2,860	sd. sh. drilling
Taylor Oil Co., No. 1 Culver, Los Angeles Co.	12- 2-15	6,238	sd. sh. drilling
Mesmer City Corp., No. 1 Mesmer, Los Angeles Co.	24- 2-15	3,004	sd. sh. drilling
Dwyer & Becker, No. 1 Compton, Los Angeles Co.	17- 3-13	4,520	suspended
Allison Synd., No. 1 Baldwin, Los Angeles Co.	8- 2-14	5,110	fishing
Cal. Ventura Oil Co., No. 1 Manhattan, Los Angeles Co..	30- 3-14	6,525	suspended
Cal. Ventura Oil Co., No. 1 Hermosa, Los Angeles Co. ..	31- 3-14	3,396	suspended
Cal. Ventura Oil Co., No. 2 Hermosa, Los Angeles Co. ..	31- 3-14	3,300	suspended
Cal. Oilfields Corp., No. 1 Hermosa, Los Angeles Co. ..	31- 3-14	2,090	hd. sd. drilling
Corniel Oil Corp., No. 1 Hermosa, Los Angeles Co.	31- 3-14	3,070	sd. sh. drilling
Smith Pet. Co., No. 1 Hermosa, Los Angeles Co.	31- 3-14	rig	rigging up
Westwood Pet., No. 1 Hermosa, Los Angeles Co.	6- 4-14	590	sd. drilling
Tulsa Oil Co., No. 1 Hermosa, Los Angeles Co.	6- 4-14	rig	suspended
Wood, C. L., No. 1 Hawthorne, Los Angeles Co.	10- 3-14	2,184	suspended
McMahon & McDonald, No. 1 Watts, Los Angeles Co. ..	12- 3-14	4,665	suspended
Staple Oil Co., No. 1 Manhattan, Los Angeles Co.	24- 3-15	780	suspended
Shelley, C. M., No. 1 Torrance, Los Angeles Co.	12- 4-14	rig	suspended
York & Smullin, No. 1 Watson, Los Angeles Co.	29- 4-13	rig	rigging up
Mack Oil Co., No. 1 Chatsworth, Los Angeles Co.	6- 2-16	rig	suspended
San-Van Oil Co., No. 1 Van Nuys, Los Angeles Co.	14- 1-16	2,124	recemented
Rucker & Croul, No. 2 Puente, Los Angeles Co.	27- 2-10	1,873	sd. sh. drilling
Arden Oil Co., No. 1 Puente, Los Angeles Co.	15- 2-10	3,325	suspended
D. & E. Oil Co., No. 1 Puente, Los Angeles Co.	3- 2-10	4,620	suspended
El Dorado Oil Co., No. 1 Puente, Los Angeles Co.	30- 2- 9	1,092	suspended
Marcel Pet. Co., No. 1 Puente, Los Angeles Co.	31- 2- 8	3,100	suspended
Cudahy Oil Co., No. 1 Bell, Los Angeles Co.	30- 2-12	1,030	redrilling
The Texas Co., No. 1 Montebello, Los Angeles Co.	4- 2-12	3,460	sd. sh. drilling
Celito Oil Co., No. 1 Monterey Park, Los Angeles Co. ..	28- 1-12	5,278	suspended
Hammer, Fred, No. 1 Alhambra, Los Angeles Co.	24- 1-13	3,412	suspended
Los Gatos Oil Co., No. 1 El Monte, Los Angeles Co. ..	16- 1-11	2,280	suspended
Rancho Oil Co., No. 1 Rosemead, Los Angeles Co.	30- 1-11	4,392	sd. sh. drilling
Nesa Pet., No. 1 Newport, Orange Co.	21- 6-10	4,910	suspended
Olympic Corp., No. 1 Calabasas, Los Angeles Co.	18- 1-17	5,695	plug. back
Hall, H. L., No. 1 Newport, Orange Co.	20- 6-10	790	suspended
Gesell, T. F., No. 1 Newport, Orange Co.	29- 6-10	1,270	sd. sh. drilling
Standard, No. 1 Newport, Orange Co.	26- 6-10	3,860	hd. sd. drilling
Borderland Oil Co., No. 1 Encinitas, San Diego Co.	12-13- 4	2,519	suspended
Borderland Oil Co., No. 1 Point Loma, San Diego Co. ..	30-16- 3	4,628	cleaning out
Carr, O. K., No. 1 Capistrano, San Diego Co.	13- 8- 8	5,250	suspended
Grey, H. H., No. 1 Redlands, San Bernardino Co.	25- 1- 2	2,392	suspended
Western Gulf, No. 1 Santa Ana, Orange Co.	12- 3- 8	2,366	cleaning out
The Texas Co., No. 1 Olive, Orange Co.	7- 4- 9	3,311	sd. sh. drilling

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well, location—	S-T-R	Depth	Status—
Western Gulf, No. 1 Santa Maria, Santa Barbara Co. ...	5- 9-33	5,803	br. sh. drilling
Fields Gas Co., No. 1 Santa Maria, Santa Barbara Co. ..	8- 9-33	5,570	suspended
Barnsdall, No. 1 Gato Ridge, Santa Barbara Co.	9- 8-32	6,050	fishing
Midwest Oil Co., No. 1 Los Alamos, Santa Barbara Co...	2- 7-33	1,800	suspended
General Pet., No. 1 Goleta, Santa Barbara Co.	21- 4-28	4,533	gas—shut in
General Pet., No. 2 Goleta, Santa Barbara Co.	21- 4-28	4,350	gas—shut in
General Pet., No. 3 Goleta, Santa Barbara Co.	21- 4-28	4,540	redrilling
General Pet., No. 134 Goleta, Santa Barbara Co.	21- 4-28	1,485	suspended
General Pet., No. 136 Goleta, Santa Barbara Co.	21- 4-28	1,802	br. sh. drilling
General Pet., No. 137 Goleta, Santa Barbara Co.	21- 4-28	2,050	suspended
General Pet., No. 138 Goleta, Santa Barbara Co.	21- 4-28	4,931	suspended
General Pet., No. 139 Goleta, Santa Barbara Co.	21- 4-28	2,051	suspended
General Pet., No. 143 Goleta, Santa Barbara Co.	21- 4-28	1,040	suspended
Boles Oil Co., No. 140 Goleta, Santa Barbara Co.	22- 4-28	1,040	suspended
U. S. Pet., No. 141 Goleta, Santa Barbara Co.	20- 4-28	1,035	suspended
U. S. Pet., No. 142 Goleta, Santa Barbara Co.	20- 4-28	1,032	suspended
U. S. Pet., No. 143 Goleta, Santa Barbara Co.	20- 4-28	1,019	suspended
El Camino, No. 149 Goleta Tideland, Santa Barbara Co.	22- 4-28	1,035	suspended
Sunset Pacific, No. 1 Goleta, Santa Barbara Co.	12- 4-29	101	sd. drilling
Bolsa Chica, No. 191 Goleta, Santa Barbara Co.	24- 4-29	4,191	recemented
Caldwell, Brown, No. 159 Goleta, Santa Barbara Co. ...	24- 4-29	1,100	sd. sh. drilling
Johnson, George, No. 1 Goleta, Santa Barbara Co.	x- 4-28	4,089	suspended
Prairie Oil Co., No. 1 Capitan, Santa Barbara Co.	32- 5-30	3,975	Sespe form.
Cuyama Oil Corp., No. 1 Cuyama, Santa Barbara Co. ...	12-10-27	rig	suspended
Hart Pet. Co., No. 1 Cuyama, Santa Barbara Co.	27-10-26	....	material
Wildcat Oil Co., No. 1 Santa Maria, Santa Barbara Co. .	20-10-35	5,500	suspended
Pacific Western, No. 1 Gibraltar, Santa Barbara Co. ..	14- 5-27	2,345	suspended
Prairie O. & G. Co., No. 1 Ventura, Ventura Co.	30- 3-22	8,800	abandoned
Associated, No. 1 Rincon Creek, Ventura Co.	19- 4-24	2,080	suspended
C. C. M. O. Co., No. 2-A Rincon, Ventura Co.	23- 3-24	8,640	br. sh. drilling
Continental, No. 1 Rincon, Ventura Co.	23- 3-24	1,560	sd. sh. drilling
Associated, No. 1 Fillmore, Ventura Co.	16- 4-20	....	material
Pure Oil Co., No. 1 S. P. Canyon, Ventura Co.	15- 4-21	2,591	suspended
Superior Oil Co., No. 1 Sespe, Ventura Co.	14- 4-21	5,812	sd. sh. drilling
Lockwood Valley Oil Co., Well No. 1, Ventura Co.	32- 8-21	1,015	suspended
Magu Synd., No. 1 Oxnard, Ventura Co.	17- 1-21	514	sd. drilling
Wilshire Oil Co., No. 1-A Buttonwillow, Kern Co.	7-29-24	6,820	sd. sh. drilling
Kent & McDonald, No. 1 Temblor Hills, Kern Co.	3-32-22	1,672	suspended
Federal Drlg. Co., No. 1 Buena Vista, Kern Co.	20-31-24	5,270	cleaning out
General Pet., No. 1 Belridge, Kern Co.	30-28-21	3,714	br. sh. drilling
The Texas Co., No. 1 Belridge, Kern Co.	22-27-20	4,860	sd. sh. drilling
Richfield, No. 1 Belridge, Kern Co.	20-27-20	6,639	abandoned
Standard, No. 2 Belridge, Kern Co.	31-27-20	4,880	sd. sh. drilling
Ohio Oil Co., No. 1 Belridge, Kern Co.	36-27-20	5,890	br. sh. drilling
Reward Oil Co., No. 1 Belridge, Kern Co.	34-27-20	4,050	sd. sh. drilling
Union, No. 17 Belridge, Kern Co.	36-27-20	5,550	oil sand
Continental, No. 1 Belridge, Kern Co.	36-27-20	181	sd. drilling
Casa Mira Oil Co., No. 1 Belridge, Kern Co.	29-28-20	rig	suspended
Tom Cannon, No. 1 Belridge, Kern Co.	18-28-22	rig	suspended
Wallace, K. C., No. 1 Belridge, Kern Co.	32-29-21	4,200	sd. sh. drilling
Rio Cal. Pet., No. 1 Shale, Kern Co.	2-27-18	2,355	suspended
Wicker, Sy, No. 1 Arvin, Kern Co.	12-30-28	1,250	suspended
Shell, No. 1 Weed Patch, Kern Co.	29-30-29	7,680	hd. sd. drilling
Shell, No. 2 Weed Patch, Kern Co.	29-30-29	5,798	sd. sh. drilling
Shell, No. 3 Weed Patch, Kern Co.	32-30-29	4,130	sd. sh. drilling
Mohawk Oil Co., No. 1 Weed Patch, Kern Co.	32-30-29	5,966	fishing
Mohawk Oil Co., No. 2 Weed Patch, Kern Co.	4-31-29	rig	suspended
Alpine Oil Co., No. 1 Weed Patch, Kern Co.	13-31-29	101	sd. drilling
Standard, No. 1 Devils Den, Kern Co.	14-25-18	2,208	br. sh. drilling
Hannon, Tom, No. 1 Devils Den, Kern Co.	25-25-18	2,690	br. sh. drilling
Langstrath, F. B., No. 1 Blackwell Corner, Kern Co. ..	14-26-19	mtl.	building rig
Shell, No. 1 Semitropic, Kern Co.	17-27-23	9,700	cleaning out
Cities Service, No. 2 Wasco, Kern Co.	16-28-24	702	core hole
C. C. M. O. Co., No. 1 Jasmine, Kern Co.	31-28-25	2,200	hd. sd. drilling
Moran & DeCamp, No. 1 Mojave, Kern Co.	26-10-14	750	suspended
Meridan Oil Co., No. 1 Antelope, Kern Co.	11- 9-15	3,804	suspended
Ritchie, J. J., No. 1 Tejon, Kern Co.	33-11-19	5,530	suspended
Associated, No. 1 Jacalitos, Fresno Co.	22-21-15	4,095	br. sh. drilling
Carruthers Oil Co., No. 1 Fresno, Fresno Co.	4-17-20	rig	suspended
Miracle Oil Co., No. 1 Cuyama, San Luis Obispo Co.	17-10-25	314	suspended
Panorama Oil Co., Well No. 1, San Luis Obispo Co. ...	7-31-21	4,019	redrilling
Latin Amer. Pet., No. 1 Shandon, San Luis Obispo Co. .	21-27-15	4,525	suspended
Continental, No. 1 San Miguel, San Luis Obispo Co. ..	26-25-11	4,940	hd. sd. drilling
Schilling, C., No. 1 Atascadero, San Luis Obispo Co. ..	24-28-12	916	suspended
Martin, J. D., No. 1 Edna, San Luis Obispo Co.	5-31-13	3,010	suspended
Schockley, C., No. 1 Pismo, San Luis Obispo Co.	13-32-13	2,530	suspended
Pacific Inland, Well No. 1, Monterey Co.	19-23-15	1,075	hd. sd. drilling
Brown, F. A., No. 1 Parkfield, Monterey Co.	15-23-14	816	suspended
O'Donnell, J. E., No. 1 Dudley Ridge, Kings Co.	7-23-20	1,635	gas well—idle
Murphy Oil Co., No. 1 Dudley Ridge, Kings Co.	20-23-20	3,750	redrilling
Kettleman Lakeview, No. 1 Tulare Lake, Kings Co.	11-23-19	1,304	cleaning out
Purman, T. H., No. 1 Reef Ridge, Kings Co.	36-23-17	2,574	cleaning out
Seymour, L. W., No. 1 Avenal, Kings Co.	10-23-16	1,148	cleaning out
Twin States Oil Co., No. 1 Point Arena, Mendocino Co. ..	14-12-17	6,270	sd. sh. drilling
Orinda Pet., Well No. 1, Contra Costa Co.	32- 1- 3	1,410	hd. sd. drilling
Pettingall, C. E., No. 1 Porterville, Tulare Co.	15-22-27	100	sd. drilling
Inland Valley Co., No. 1 Visalia, Tulare Co.	24-17-24	2,192	cleaning out
Colusa Oil Co., No. 1 Bush, Colusa Co.	31-15- 4	850	hd. sd. drilling
Oakdale Oil Co., No. 1 Oakdale, Stanislaus Co.	3- 2-10	4,110	hd. sd. drilling
Orland Oil Synd., No. 1 Orland, Tehama Co.	31-23- 3	2,360	sd. sh. drilling

Bateman Extension One of Best Wells

Linking of Bateman and Lathrop Fields Seems Assured by New Test, Indicating Field Approximately 14 Miles Long South to North

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Mar. 16.—Burton Drilling Co.'s No. 1 Florey, 2 miles northwest of the Bateman discovery well in the Kilgore area, northern Rusk County, which was formerly condemned as a dry hole because it ran approximately 145 feet lower than the discovery well of this field, came in this week for one of the best wells of the field, marking the first northwestern extension for the area, and paving the way for more drilling in that direction from the discovery.

Sand was topped in the well at 3,710 feet last week and the test was shut down at a total depth of 3,729 feet with casing cemented. When the plug was drilled this week it made an initial flow of 434 bbls. the first hour through four lines, two of which were from the casing, one line being choked to 1 inch and one choked to three-quarters of an inch. The other two lines came from the tubing, one line being choked to 1 inch and the other to three-quarters of an inch. It flowed a total of 1,924 bbls. the first 18 hours on choke. Total depth now is 3,739 feet.

Striking the sand so much lower than the discovery, and encountering such a good well rather disputes the theory that tests running low on the chalks appear as dry holes. It is difficult to presage the outcome of any test in these areas now, and anyone predicting the outcome of a test may be far wrong as has been the case in many of the wells already brought in around the various pools. A test in this part of the basin cannot be counted out until it is plugged and abandoned.

Two tests in the Kilgore area, McCamey and others' No. 1 Richards, and Byrd and others' No. 1 Elder, the former 1 mile northeast of the town of Kilgore, and the other approximately 1 mile north of the Richards test, are shut down in the Georgetown lime, the former at 3,564 feet and the latter at 3,579 feet, and consequently have practically been marked off as dry holes for this field, limiting its possibilities to the east and northeast.

Lathrop-Bateman near Linking

Lloyd Oil Corp.'s No. 1 Andrews (Elliott), 150 feet from the south and 330 feet from the west of the northwest 50 acres of the W. M. F. Hyde Survey, approximately 4 miles north of production in the Bateman or Kilgore Field, is shut down to set casing. Saturated sand was topped at 3,642 feet, and the test was drilled in sand to 3,650 feet where it now sets as absolute proof of making a producer and extending production in the direction of the Farrell-Lathrop or Pine Tree Pool to the north in Gregg County. That field was extended 3 miles south this week, consequently there are approximately only 5 miles of untested acreage intervening between production in the two fields, and appearing as potential producing acreage at this time, virtually insuring the linking of the two fields into one. The Farrell-Lathrop Pool is over 4 miles long from north to south, and Bateman or Kilgore Field is over 2 miles wide and a little over 2 miles long with the Lloyd test promising it another 4-mile extension to the north, thereby making the field over 6 miles long from north to south. If the two pools eventually connect they will make one field of approximately 14 miles in length from north to south, and yet have chances of being extended still farther as there have been no dry holes drilled south of the Bateman Field and no dry holes drilled north of the Farrell-Lathrop Pool yet.

The question now remains whether the Joiner Field in Rusk County and the Bateman Field will be linked by production making a continuous field extending over 23 miles from south to north. The Joiner Field is over 2 miles in width from east to west, has been defined on the east, as is the Bateman Pool, and has also been defined to the south. How far it will run to the southwest and west yet remains to be seen.

Guy Lewis' No. 1 Cooke, in the J. Jordan Survey, approximately 2½ miles west of production in the Joiner Pool, is drilling at 3,640 feet in shale, going out of the chalk at 3,610 feet, running lower than the nearest producer in the pool, but as stated above this is no criterion as to a test's possibilities, and it may yet encounter the Woodbine and mark another extension, making the field around 5 miles in width.

There are at present 14 producers in the Bateman area, 6 in the Farrell-Lathrop Pool and 39 in the Joiner Pool.

Farrel-Lathrop Pool

East Texas Refining Co. and Foster's No. 1 Fisher, 3 miles south of the Farrell-Lathrop Pool, was completed this week for an initial production of around 225 bbls. the first hour through 2½-inch tubing. Total depth is 3,577 feet. Arkansas Fuel Oil Co.'s No. 1 McKinely, in the William Robinson Survey, a mile north of the Farrell-Lathrop discovery well, was completed this week for an initial production of 340 bbls. in 30 minutes flowing open. The well was estimated good for around 15,000 bbls. on open flow. Total depth is 3,600 feet, top of sand was cored at 3,579 feet. These two wells give a length of 4 miles to the field from north to south, extending possibilities for production still farther north and farther south.

J. E. Farrell, W. A. Moncrief, W. C. Noble, and R. F. Baker, all of Fort Worth, and E. A. Showers of Longview, closed a deal with the Yount Lee Oil Co. of Beaumont, Tex., this week in which the latter paid a cash consideration of $1,270,000 with $2,000,000 to be paid out of one-fourth of the first oil produced on the 2,500 acres turned in the deal, this acreage surrounding the Farrell, Arkansas Fuel Oil Co. and others' discovery on the Lathrop farm in the William Robinson Survey, Gregg County. This is the largest deal yet consummated in the new producing area of East Texas, and is announced after several weeks of consultation and discussion.

J. E. Farrell assembled over 5,000 acres around what is now the discovery well, turning part of it to the Arkansas Fuel Oil Co. which took over the drilling and production of the well, but before the well was completed as a producer Farrell and associates and the company divided the acreage, a half interest in the well being retained by the company, and a half by Farrell and associates. Mr. Farrell retained a half interest in the 2,500 acres which he and his associates took when the split was made, the others retaining an eighth interest in this acreage, and it was this 2,500 acres that was sold to the Yount Lee Oil Co.

Purchase of this block may result in the unitizing, and joint production plan being adopted by it and the Arkansas Fuel Oil Co. which owns the remaining 2,500 acres in the previous block which consisted of 5,000 acres. However, this has not yet been announced, and many small leases around the block may prevent unitization of the block.

Line to Shreveport

Reports came out of Shreveport this week that the Arkansas Fuel Oil Co. would start construction on 70 miles of pipe line from the Gregg County area to Shreveport, and will serve the Louisiana Oil & Refining Co.'s refinery at that place, also carrying crude to Arkansas and the coast. The line will probably be an 8-inch. Shortly after the discovery well was brought in the company made a survey for such a line, and plans were made to lay it at that time, but the Texas & Pacific Railroad lowered its freight rates from Willow Springs where Arkansas Fuel Oil Co. has a loading rack, to Shreveport, to 7 cents per hundred weight. The latter company has been taking advantage of this rate and shipping oil to Shreveport by tank car, and will continue to do so until the line is completed into the area. A short 6-inch line now connects the pool to the loading rack.

The East Texas Refining Co. started running oil through its 7 miles of 4-inch line to Longview from the Farrell-Lathrop area on March 15. Oil is being shipped out from a 36-car loading rack at the former place. The line is now connected with the East Texas Refining Co. and Foster leases on the Fisher farm in the Ruddle Survey, and the East Texas Refining Co. and others' lease on the B. Rodden farm in the William Robinson Survey.

EAST CENTRAL TEXAS PRODUCTION

Boggy Creek	2,620
Cedar Creek	20
Currie	260
Hill County	30
Mexia	3,652
Nigger Creek	55
Powell	4,903
Richland	99
Rusk and Gregg Counties—	
Joiner district	39,102
Kilgore and Lathrop	35,579
Van	31,992
Wortham	510
Total	118,822
Week ending March 7	89,343
Increase	29,479

Refinery to Start

The East Texas Refining Co. will start up its Longview refinery in about two weeks, processing oil from the Rodden and Fisher leases. The company's refinery at Friar's Switch, north of the Joiner Field in Rusk County, is now testing its lines, and will be ready to process Joiner crude as soon as this is completed. This will be the first refinery in the new area to start refining operations. The company is associated in the Rusk County Pipe Line Co.'s 4-inch line which serves the Joiner Field and has been transporting oil to a loading rack at Friar's Switch for some time, the oil being shipped out via tank car.

The Gulf Coast Pipe Line Co., which was organized by the Moody-Seagraves and Yount Lee Oil Co., is now surveying for a 10-inch main line from the Farrell-Lathrop Pool to Beaumont, and will be served by a lateral from the Joiner Field where the former company has producing acreage. The pipe line company is now constructing a short 6-inch line from the latter pool to a loading rack at Friar's switch, and will ship out by tank car for the time being. The main line will serve the Yount Lee Oil Co.'s newly purchased 2,500-acre block in the Farrell-Lathrop area.

The Butler-Calhoun Pipe Line Co. of Corsicana started work on a 6½-mile line from the Joiner Field to Overton, the line to be a 6-inch and serve wells on Anderson and others' lease on the Thrash farm in the Maria Josefa Pru Survey. The oil will be shipped to the Kent Refining Co.'s plants at Angus and Minerva.

Another large deal was closed on acreage near the Farrell-Lathrop Pool this week, the Tidal Oil Co. purchasing a half interest in approximately 800 acres east and northeast of the discovery well, consideration being around $100,000 Tidal will develop the property and has already staked a location for a test on the A. A. Castleberry tract near the discovery well.

Well Temperature Rises

Two weeks ago it was mentioned that the temperature had risen in the Farrell-Lathrop discovery, many believing that salt water was near and would soon

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EAST CENTRAL TEXAS WILDCATS

Week Ending March 16

CHEROKEE COUNTY

McDonald Bros.' No. 1 Newton, center of 113-ac. tract, Thomas Quevedo Sur., 3 miles N of Jacksonville ....Derrick.
R. G. Baker et al's No. 1 M. M. Tommie, 945 ft. N and 1,300 ft. E, William George Sur. ....Shut down 4,003 ft.

DELTA COUNTY

Delta Development Co.'s No. 2 Hays Kinney, 300 ft. S of No. 1 Cooper, Townsite Sur. ....Drlg. 2,335 ft.
D. S. Hoods' No. 1 J. J. Balser, 185 ft. from S and 580 ft. W of Balser 40-ac. tract in SE cor. T. B. Laddin Sur. ....Shut down 1,559 ft.
Everett Drlg. Co.'s No. 1 Sansivy, 1,320 ft. N and 1,320 ft. W, J. B. Craig Sur. ....Drlg. 3,002 ft.
Worthington and Stedman's No. 1 W. H. Dejehett, 150 ft. from S and 776 ft. from W of 52-ac. tract, E. Chick Sur. ....Shut down 1,927 ft.

GREGG COUNTY

Alco Royalty Co.'s No. 1 J. R. Castleberry estate, 150 ft. from N and 1,950 ft. from E of survey ....Derrick.
Arkansas Fuel Oil Co.'s No. 1 R. S. McKinley, 990 ft. from N and W of most northern cor. 212-ac. tract, William Robinson Sur. ....Init. Prod. 13 hrs. 3,169 bbls., T. D. 3,600 ft.
Arkansas Fuel Oil Co.'s No. 2-A F. K. Lathrop, 5,820 ft. from N and 2,800 ft. from W of survey, William Robinson Sur. ....Drlg. 1,400 ft.
Arkansas Fuel Oil Co. et al's No. 3-A F. K. Lathrop, 1,710 ft. S and 1,518 ft. W of NE cor. of 96-ac. tract, William Robinson Sur. ....Drlg. 1,040 ft.
Arkansas Fuel Oil Co.'s No. 1-B F. K. Lathrop, 5,300 ft. from W and 4,350 ft. from N of survey, William Robinson Sur. ....Drlg. 1,800 ft.
Bell & Graddy's No. 1 M. George (or Daniels), 225 ft. S and 650 ft. W of 26-ac. tract, Mary Van Winkle Sur. ....Drlg. 1,785 ft.
W. H. Byrd, Jr.'s No. 1 Art Mitchell, 150 ft. from E and 150 ft. from S of 15-ac. lease, 1,300 ft. from S and 850 ft. from E of survey, John Carithers Sur. ....Rig up.

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Terrell County Tests May Resume Work

Big Lake Well Flows Wild When Pressure Increased. Western Crane Test May Be Plugged. Powell Pool Extended Slightly

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Mar. 16.—Magnolia Petroleum Co.'s No. 4 Bashara, in Section 17, Block B-3, Winkler County, east of the Hendricks Pool, will probably be carried deeper from its present total depth of 3,109 feet as it pumped only 9 bbls. the first day and 2 bbls. the second day and was shut down for orders. It offsets a 16,000,000-foot gas well which has been producing for about two years.

Taylor-Link Oil Co.'s No. 1 Bullock and others in Section 41, a short extension to the Powell or World Pool, Crockett County, is now running 5-inch casing after cleaning out following a 50-quart shot on March 14 from 2,570-2,635 feet. Total depth is 2,674 feet.

Southern Crude Oil Purchasing Co.'s No. 2 Cowden in Section 34, Block 43, one-half mile south of the company's discovery well in the northeastern part of Ector County, is now drilling at 3,930 feet. Top of the pay in the discovery well was logged at 4,130 feet.

Terrell County

Mid-Kansas Oil & Gas Co.'s No. 1 Goode in Section 26, Block 161, G.C.& S.F. Survey, Terrell County, is now drilling at 5,890 feet in black lime with no increase in gas registering since the 6,500,000 feet was encountered at 5,605 feet. Two other tests in the county may resume operations after having been standing shut down for a long period, the striking of gas in the Goode test stimulating the owners of these tests into drilling them down. One is owned by Jones and associates and is located on the Pankenham ranch in Section 43. Block B-2, C.C.S.D.&R.G.N.G. Survey. This test has been shut down at 628 feet in shale and is going ahead. It is about 23 miles northwest of the Goode test. The second test is owned by the Keck Pecos Trust Co. and is on the Hamilton ranch in Section 6, Block D-7, E.L.&R.R. Survey in the southeastern part of the county.

Big Lake Well on Rampage

Group No. 1 Oil Corp. and Continental Oil Co.'s 4-B University in the Big Lake Field, Reagan County, rebelled against back pressure on March 10 and went on a rampage when the pressure was increased to 2,000 pounds, causing something in the hole to give way, possibly a break in the pipe, or the giving away of the cement at around 8,050 feet where the 7-inch was cemented. This was the last deep well to be completed in the pool, and incidentally the largest, having established a peak of 8,687 bbls. during the fore part of February before it was tubed in compliance with the Railroad Commission's orders.

The well flowed wild three days, but a new bradenhead and new gates were installed March 15 after the well was brought under control on March 13. It produced 6,683 bbls. in the 24 hours ending at 7 a.m. on March 14, a day after it was brought under control. Total depth of the hole is 8,587 feet.

Toborg Pool

The shallow Toborg Pool, northwest of the Yates Field, which has been producing 22-24 gravity crude oil which the Shell Pipe Line Co. has been taking and for which it paid a flat price of 50 cents per barrel, was affected this week by the price cut on oil in the Permian Basin, and that oil was cut to a flat price of 25 cents per barrel. There are 26 producing wells in the pool producing around 1,550 bbls. per day, depths of the wells ranging from 330 to 500 feet.

Western Crane County

Cranfill Brothers and others' No. 1 Muir, in Section 23, Block B-27, western Crane County, is now shut down for orders and probably will be plugged. Total depth is 4,457 feet. Six hundred feet of sulphur water rose in the hole in eight hours, the water coming in at 4,452 feet. This test is 2 miles south of the Cranfill Brothers and others' No. 1 Tubb, in Section 8, Block B-27, which encountered a pay formation below the sulphur water strata last October and promised a pool for this part of the county, 18 miles west of other production in the county. That well is now drilling at 4,160 feet flowing 16 bbls. of fluid per hour, 85 per cent water.

West Texas recorded a drop of 7,692 bbls. per day this week, falling off to 234,689 bbls. from the past week's daily average of 242,381 bbls.

PANHANDLE, WICHITA FALLS AND RANGER

One completion in Gray County was the total for the Panhandle district for the week, with but few locations staked following the price cut on March 10. Production fell off 611 bbls. per day during the week.

Production in the Wichita Falls district fell off 3,325 bbls. per day, from the past week's daily average of 64,647 bbls. to this week's daily average of 61,322 bbls.

WEST TEXAS PRODUCTION
Week ending March 14

County—	Wells	Bbls.
Andrews	2	36
Crane	375	18,962
Crockett	50	1,619
Ector	77	5,689
Fisher	10	751
Garza	1	24
Howard-Glasscock	537	21,755
Irion	7	65
Jones	77	1,326
Loving	38	3,851
Mitchell	111	1,800
Pecos	535	93,687
Reagan	255	28,175
Runnels	5	121
Scurry	5	6
Upton	257	5,250
Taylor	3	150
Ward	54	3,342
Winkler	594	48,080
Total production this week		234,689
Total production last week		242,381
Decrease		7,692

COMPLETIONS IN WEST TEXAS

Jones County

Hart and others' No. 1 Roberts, temporarily abandoned, total depth 1,000 feet.

Loving County

The California Oil Co.'s No. 7 Reagan and McElvain, total depth 4,360 feet, plugged back to 4,358 feet, top pay 4,335-39 feet, increase in oil 4,343-57 feet, shot 200 quarts 4,306-46 feet, initial production 463 bbls., flowing after shot.

Pecos County

Southern Oil Corp.'s No. 1 Tippett, top pay 464 feet, initial production 198 bbls. in 13 hours on pump, total depth 500 feet.

Ward County

Prairie Oil & Gas Co.'s No. 1 G. P. Hill, top pay 2,285 feet, initial production 70 bbls. per day on swab, total depth 2,405 feet. Paul Ryan's No. 1 Allen, top pay 2,180 feet, initial production 15 bbls. per day flowing, total depth 2,244 feet.

RUNS THROUGH TRUNK LINES

Company, size and location—	Bbls.
Atlantic, 10-inch, Houston	25,863
Gulf, 10-inch, Ranger	21,309
Humble, 2 and 8-inch, San Angelo	29,795
Humble, 10 and 12-inch, Comyn	45,195
Illinois, 2 and 8-inch, Del Rio	35,900
Magnolia, 8-inch, De Leon	26,136
Pasotex, 8-inch, El Paso	11,694
Shell, 10-inch, Healdton	27,671
Shell, 10-inch, Houston	25,876
Texas, 10-inch, Houston	24,744
Total	274,183

RUNS TO WEST TEXAS REFINERIES

Big Spring Ref. Co., Big Spring	1,142
Burford Ref. Co., Pecos	4,261
Cosden Ref. Co., Big Spring	6,331
Col-Tex Ref. Co., Colorado	5,995
Great Western Ref. Co., Big Spring	1,813
Wickett Ref. Co., Wickett	337
Total	19,879

TANK CAR SHIPMENTS

Big Lake, from Texon	3,000
Fox & Thorsen, from Mertzon	70
Southern Crude, from Wickett	12,035
Total	15,105
Total daily average distribution	309,167
Total daily average production	267,429
Daily average from storage	41,738

COMPLETIONS IN PANHANDLE DISTRICT

Carson County

Texas Interstate's No. 1 Burnett, abandoned location.

Gray County

Hurst and others' No. 1 Ayres, abandoned location. Magnolia Petroleum Co.'s

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WILDCAT OPERATIONS IN WEST TEXAS

Week Ended March 16

Company, well, farm name, section and block—	Remarks—
ANDREWS COUNTY	
Deep Rock Oil Co. et al's No. 1 Kuykendall, 2,310 ft. from N and E of SW cor., Sec. 24, School Blk. A-46	Plugging back to shoot.
Deep Rock Oil et al's No. 1 King, 330 ft. from N and 2,310 ft. from E Sec. 11, Blk. A-46	Top pay 4,335 ft.; flows every 4 days; temporarily abandoned; total depth 4,454 ft.
BORDEN COUNTY	
George Goodrum's No. 1 Conrad, 725 ft. from N and 980 from W Sec. 90, Blk. 30, La Vaca Navigation Sur.	Shut down 300 ft.
BREWSTER COUNTY	
Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor. Sec. 45, Blk. G-15, G.C.&S.F. Sur.	Shut down 1,935 ft.
E. L. Chapman's No. 1 Skinner, C SW SE Sec. 100, Blk. 2, G.C.&S.F. Sur.	Shut down 1,302 ft.
Trans-Pecos Oil & Gas Co.'s No. 1 Jones, 920 ft. from N and 2,500 ft. from E of Sec. 18, Blk. G-15, G.C.& S.F. Sur.	Total depth 2,800 ft.; rebuilding rig.
Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 miles S of Alpine	Shut down 1,750 ft.
COKE COUNTY	
Reed, Hitchens et al's No. 1 Duncan, 1,980 ft. from S and 1,650 ft. from E of Sec. 239, Blk. 2, H.&T.C. Sur. (4,500-ft. cable test)	Shut down 30 ft.
CONCHO COUNTY	
Beesley et al's No. 1 Waring estate, 400 ft. from N and E Sec. 163, T.&N.O. Sur.	Shut down 267 ft.
Turner et al's No. 1 Borsig, 150 ft. from S of NE cor. G. Emmig Sur. 130, 6 miles W of Paint Rock	Fishing 1,850 ft.
CRANE COUNTY	
Cranfill Bros. and Gulf's No. 1 J. B. Tubb, 2,310 ft. from N and 330 ft. from E of Sec. 8, Blk. B-27, Public School Land	Drlg. 5,114 ft.
Cranfill Bros.' No. 1 Muir, 330 ft. from N and 2,310 ft. from W Sec. 23, Blk. B-27, Public School Land	Shut down 4,470 ft.
CROCKETT COUNTY	
Doleman & Moore's No. 1 Perner, 3,135 ft. from N and 1,485 ft. from E of Sec. 36, Blk. 2, L&G.N. Sur.	Spudded and shut down.
Taylor-Link Oil Co.'s No. 1 Mary Bullock et al, 330 ft. from N and E of Sec. 41, T.C. Sur.	Cleaning out cave 2,677 ft.
CULBERSON COUNTY	
Cranfill Bros. and Sholts' No. 1 Seay, 2,310 ft. from S and W Sec. 45, Blk. 60, Public School Land	Shut down 1,365 ft.

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WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ending March 16

Company, well, farm name, section and block—	Remarks—
CARSON COUNTY	
Continental Oil Co.'s No. 1-A Jordan, 330 ft. S, 1,320 ft. W, SW, Sec. 123, Blk. 4, I.&G.N. Sur.	Plugged back for gas 2,805-32 ft; 3,000,000 ft. gas.
Interstate Prod. Co.'s No. 1 Coffee, C S½ NW, Sec. 15, Blk. 4, I.&G.N. Sur.	Moving in rotary.
Krebs & Barnard's No. 1 Barnard, 660 ft. S and W, NW, Sec. 24, Blk. 4, I.&G.N. Sur.	Fishing 3,220 ft; estimated 100 bbls. from pay 3,212-18 ft.
North American O. & G. Co.'s No. 1 Burnett, 1,341 ft. S, 662 ft. E, of S E½ SE, Sec. 80, Blk. 4, I.&G.N. Sur.	S.D. 630 ft.
Plains Holding Co.'s No. 1 M. P. Co. fee, C N 10 ac., N½ NW SW, Sec. 40, Blk. 4, I.&G.N. Sur.	Spudded.
Plains Holding Co.'s No. 1-A Kolka, 660 ft. N, 710 ft. E, NE NE, Sec. 43, Blk. 4, I.&G.N. Sur.	T.D. 2,660 ft; estimated 65,000,000 ft. gas.
Red River Gas Co.'s No. 5-A Bivins, 1,320 ft. S, 660 ft. E, Sec. 45, Blk. B-20, G.&M. Sur.	Drlg. 1,475 ft.
The Texas Co.'s No. 1 Schaffer, C SW, Sec. 68, Blk. 4, I.&G.N. Sur.	Location.
The Texas Co.'s No. 1 Bednarz, 817 ft. S, 172 ft. W, S 100 ac. of SW, Sec. 2, Blk. 4, I.&G.N. Sur.	Location.
CHILDRESS COUNTY	
C. L. Sloan et al's No. 1 B. P. Smith, Sec. 49, F. P. Knott lands	T.D. 5,000 ft.
COCHRAN COUNTY	
Continental Oil Co.'s No. 1-B Slaughter, 4,950 ft. N and E, of Lge. 134, Armstrong County School lands	Drlg. 4,085 ft.
COLLINGSWORTH COUNTY	
Dixon et al's No. 1 Bell, 330 ft. N, 1,320 ft. W, Sec. 102, Blk. 21, H.&G.N. Sur.	U.R. 12½-in. csg. at 536 ft.
COTTLE COUNTY	
Darby Oil Co. and Merry Bros. & Perrin's No. 1 Richards, 330 ft. NE, Sec. 13, B.S.&F. Sur.	Drlg. 3,460 ft.
GRAY COUNTY	
Adams, Prince et al's No. 1 Morse, 330 ft. NE SE, Sec. 6, Blk. 26, H.&G.N. Sur.	S.D. 2,430 ft.
Anderson et al's No. 2 Vollmert, 330 ft. N and W, SW, Sec. 140, Blk. 3, I.&G.N. Sur.	Rig.
Beck's No. 1 Sullivan, 330 ft. N and E, W½ NW, Sec. 135, Blk. 3, I.&G.N. Sur.	T.D. 3,058 ft; 75 bbls. oil and 8,000,000 ft. gas 3,033-58 ft.
Boyles et al's No. 1 Colebank-Morse, 330 ft. NE, Sec. 65, Blk. 25, H.&G.N. Sur.	Spudded and S.D.

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Northern Pennsylvania's Gas Area

Cathcart of State Geological Survey Submits Interesting Report on Recently Opened Field and Its Surroundings

By Stanley Holman Cathcart
Pennsylvania Geological Survey

In June, 1930, the Allegheny Gas Co., the producing organization of the North Penn Gas Co., began drilling a well on the Sabinsville anticline in Farmington Township, Tioga County. A large flow of gas was encountered at 4,012 feet on September 10, in what probably is the Oriskany sand. The well blew wild until brought under control by the Halliburton process, September 25, and was finally put on production October 11. Initial production was variously reported as 10,000,000 to 20,000,000 feet and the production after drilling out the cement as about 2,000,000 to 2,500,000 feet a day.

Situated as it is near the east edge of the Allegheny plateaus, this well was essentially a "wildcat." Forecasts based upon past experience in and general geological understanding of the region could anticipate no greater success for the test than a possible small oil well or a probable small to moderate sized gasser. Bringing in a well of such capacity as this one, therefore caused correspondingly great excitement that was felt far beyond the boundaries of Pennsylvania. Representatives of oil and gas companies and independent leasers flocked to the scene of the strike and began leasing immediately. Lease operations extended throughout the entire adjacent country in Pennsylvania and New York, so that by middle December more than 2,500 leases had been recorded in Tioga County, 800 in Potter County, and many more in Clearfield, Cameron, Clinton, Lycoming, Sullivan, Bradford and Susquehanna Counties, in Pennsylvania. Fortunately the leasers included a fair proportion at least, of seriously interested and responsible companies and individuals, so that, even before the initial well was brought under control, additional test wells were being planned, and within three months, 10 other locations have become active, one of which is nearing completion.

When the region was visited by the writer for the Pennsylvania Geological Survey, December 17 to 19, 11 locations were active, and at least one other location was under consideration. All of the wells start in the Chemung group of sandstones and shales of upper Devonian age.

Standard Rigs Used

Standard rigs are in use on all locations. With the exception of one well all have started with 10-inch holes. Common practice is to run 100 to 200 feet of 10-inch surface pipe, to set 750 to 900 feet of 8-inch casing, and to cement 4,000 feet of 6-inch casing above the Oriskany. The Close well has been started with larger hole in anticipation of drilling deeper should the Oriskany prove to be nonproductive. Eighteen feet of 16-inch and 1,000 feet of 10-inch has been run.

Drilling is not difficult. Commonly a water bearing sand is encountered within the first 100 to 300 feet and little additional water is met before the 8-inch casing is set. After setting the 8-inch casing, the wells are drilled practically dry and give little or no trouble from caving or crooked hole. Drillers' logs are kept on all wells and in the case of the three Lycoming Natural Gas Corp. wells, samples are taken at frequent intervals. The formation drilled is variously logged but probably most of it would fall within the classification, sandy shale and shaly sandstone. Relatively little true shale, lime or sand is logged in the Chemung section and such strata as are so logged do not seem to persist between locations as they now are spaced. The only logical horizon marker yet known that should prove useful in controlling the depth of the well is the Onondaga lime, 25 feet of which is logged in the Palmer well as immediately overlying the producing sand.

Cost $13,000

The cost of drilling a well to the Oriskany in this area is estimated to be $13,000 to $16,000. The time required will probably range between one and one-half and two and one-half months.

As intimated above, most of the acreage adjacent to the wells now drilling has been leased. Some acreage has been acquired outright. Almost every conceivable sort of lease bargain has been employed in securing leases. Annual rentals are said to range between 25 cents and $10 an acre. The royalty clause may call for from $100 to $500 for a gas well, or in some instances specify 2 cents per 1,000 feet or one-eighth of production. One lease calls for $5 cash consideration, a well within six months, and one-eighth royalty. Cash bonuses were paid in many instances on first-year rentals. Leases are commonly for terms of 10 to 20 years, but some leases that emphasize immediate drilling are for a shorter term.

Log of Discovery Well

The discovery well, No. 1 Palmer of the Allegheny Gas Co., appears to be located near the axis of the Sabinsville anticline, but the relative structural height of the field at this latitude is not determinable from government surveys. Stratigraphically the well appears to begin about 1,000 feet below the top of the Chemung group. The producing horizon, as judged by material blown from the well, is sandstone that is said by actual test to show 11 per cent porosity. The stratigraphic succession indicated by the driller's log of the well and the apparent thickness of the strata penetrated suggest that this is the Oriskany sandstone.

When visited in December, the well was reported to be producing in excess of 2,000,000 feet daily, to show a shut-in pressure of 1,650 pounds and an open flow pressure of 520 pounds. The gas is reported to be of good quality. A driller's log of the well is given below:

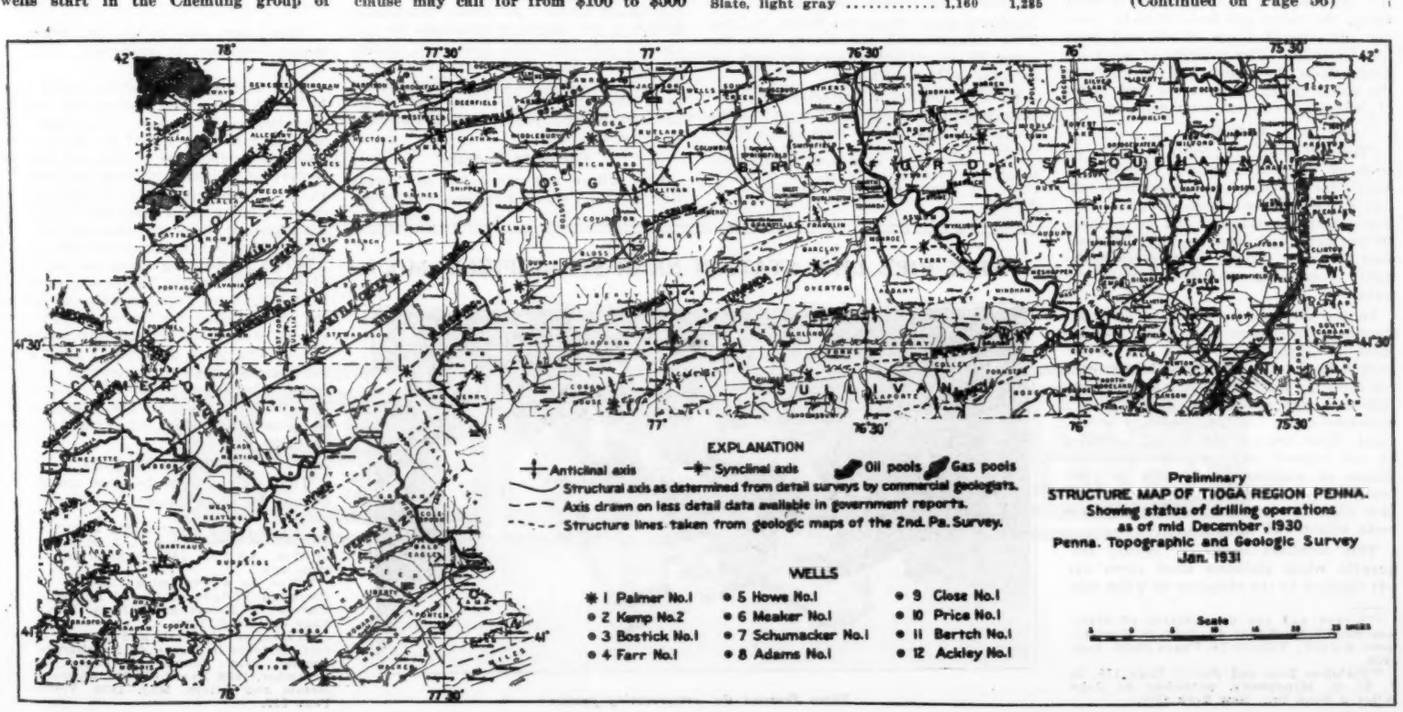
Log No. 1 Palmer gas well, Tioga County, Pennsylvania:

	From	To
Slate, gray (light)	0	260
Sand, gray (light)	260	267
Slate, gray (light)	267	275
Sand, gray	275	280
Slate, gray (dark)	280	380
Sand, gray	380	390
Shale (dark gray)	390	457
Sand (dark gray)	457	465
Sand and shells (lt. gr.)	465	695
Slate, gray	695	865
Shale, dk. gr.-lit. gas	865	950
Shells, gray	950	967
Sand, gray	967	975
Shale, dark gray	975	1,005
Sand, dark gray	1,005	1,012
Slate and shells, gr. dk.	1,012	1,050
Slate, light gray	1,050	1,065
Slate and sand, lt. gr.	1,065	1,078
Slate, dark gray	1,078	1,145
Sand, dk. gray, lt. gr.	1,145	1,160
Slate, light gray	1,160	1,285
Shale, black	1,285	1,297
Slate, dark gray	1,297	1,370
Sand, light gray	1,370	1,384
Slate, shale, shells, bk.	1,384	1,560
Sand, gray	1,560	1,592
Broken sand, gray	1,592	1,615
Sand, gray	1,615	1,622
Broken sand (dk. gr.)	1,622	1,690
Shale (dk. gr.)	1,690	1,696
Shells, gray	1,696	1,705
Slate, gray	1,705	1,716
Broken sand, gray	1,716	1,735
Sand, gray	1,735	1,741
Broken sand, gray	1,741	1,756
Slate and shells, gray	1,756	1,830
Shale, dark gray	1,830	1,842
Slate and shells, gray	1,842	1,995
Slate, gray	1,995	2,030
Shale, light gray	2,030	2,050
Sand, gray	2,050	2,070
Slate and shells, gray	2,070	2,090
Sand, gray	2,090	2,097
Slate and shells	2,097	2,125
Slate, black	2,125	2,270
Sand, gray	2,270	2,296
Shell, gray	2,296	2,312
Slate, gray	2,312	2,330
Broken sand, gray	2,330	2,360
Sand, gray	2,360	2,371
Shale, gray	2,371	2,392
Sand, dark gray	2,392	2,405
Shale, gray	2,405	2,434
Sand, gray	2,434	2,445
Slate and shells, lt. gray	2,445	2,470
Sand, gray	2,470	2,595
Lime, gray	2,595	2,605
Shale dk. gr. with pyrite	2,605	2,654
Slate and shells, gray	2,654	2,667
Slate, dark gray	2,667	2,690
Shale, dark gray	2,690	2,765
Slate and shells, dk. gray	2,765	2,777
Shale, gray and black	2,777	3,015
Lime, sandy, gray	3,015	3,100
Shell and lime, dk. gray	3,100	3,120
Shale, dark gray	3,120	3,180
Shale, gray	3,180	3,500
Lime, gray	3,500	3,557
Shale, dk. gr. w. pyrite	3,557	3,930
Pyrite, black	3,930	3,940
Pyrite, limy, black	3,940	3,950
Shale, calcareous	3,950	3,970
Shale, black	3,970	3,980
Lime, slaty, black	3,980	3,987
Lime, sandy, black	3,987	3,995
Lime, dark gray	3,995	4,005
Sand, gray, hard, Orsk.	4,005	4,010
Sand, gray, hard, Orsk.	4,010	4,010½
Sand, gray, hard, Orsk.	4,010½	4,012
150,000 cu. ft. gas.		
300,000 cu. ft. gas.		
12,000,000 cu. ft. gas.		

Covered by Surveys

All of the wells fall within the area that is included in two folios of the Geologic Atlas of the United States, published by the United States Geological

(Continued on Page 56)



Oil Well Service Steel Requirements

Stainless Steel of Maximum Hardness and Corrosion Resistance Consistent With High Impact Values Is Indicated

By H. T. Morton and I. A. Rummler

Regardless of the vast quantity of literature that has been published on the subject of stainless steel, one of the oldest stainless steel alloys has been almost omitted. This alloy is of the high carbon type covered by Armstrong's patent No. 1,322,511 granted in 1919. This material has found an important field of usefulness, especially in the oil industry where a hard metal highly resistant to corrosion is needed. It is used extensively for the balls and seats of pump valves in pumping oil from the wells, through the pipe lines, and about the refineries. Others use it for needle valves on oil lines and various places.

This stainless steel alloy contains about 1 per cent of carbon with 17 per cent of chromium, is capable of retaining a Rockwell hardness of C 56 to C 60 after quenching, and is highly resistant to corrosion. Like other stainless steels, its working at the mill and by the heat treater must be carefully controlled. This paper is written to furnish some data on the corrosion characteristics and proper heat treatment of this high carbon stainless steel and is divided into two parts: First, the type of failure of this alloy; second, the effects of various heat treatments on the physical properties.

Types of Failure

Balls, valves and other parts used in the oil industry fail either by erosion due to wear from the sand and solid matter contained in the oil, by corrosion due to attack by acids and chemicals contained in the oil, or by flaking and cracking due to low impact resistance. Each of these has its own cause and requires a special means for prevention.

Erosion

Erosion is the gradual wearing away of the surface of the balls and seats. Most crude oils and some refined oils contain fine particles of solid matter, sand, or grit, which act as an abrasive when moved rapidly across a metal surface. Thus as the oil flows, it carries with it these small particles which wear away the metal surfaces in contact with it. As soon as a small spot is worn away, the valve will leak—thereby causing increased leakage of oil and more rapid erosion. The rapidity of wear depends upon the polish and hardness of the metal itself. Soft areas and pitted or defective areas will wear more rapidly.

Corrosion

"Regardless[1] of the precise atomic processes by which atmospheric corrosion of metals takes place, it is, generally speaking, a chemical or electrochemical reaction involving oxidation and an aqueous environment and hastened by the presence of acid. Oxygen is universally the agent combining ultimately with the metal."

In the oil industry there is little atmospheric corrosion of valves because most of them are located far below ground level. But the acids, brines, etc., contained in most crude oils rapidly corrode ordinary steels, and slowly attack stainless steels. Where ordinary structural steels become pitted and corroded on all exposed surfaces, the corrosion failure of stainless steel parts is often confined to small local areas on the surface while the remaining areas might remain bright and shiny.

This localized corrosion[2] occurs frequently when stainless steel parts are left exposed to the elements or when subjected to certain corroding media[3]. Corrosion pits are found in stainless steel balls and valve seats used in the oil industry. These pits are sometimes circular but appear more generally as long thin lines on the surface. By etching balls with 50-50 boiling hydrochloric for 10 minutes or more, it was found that the long thin pits were on the sides of the ball extending toward the poles and the circular pits were at or near the poles of the balls. (These balls are forged by hot upsetting slugs from round bars smaller in diameter than the finished balls. The area where the ends of the original bars come to the surface of the balls are called poles. The flash between the dies is the equator, and the area between these sections is called the sides of the ball.) The long thin pits extending along lines connecting the poles indicate that there might be a relationship between them and the direction of rolling of the original bars.

Locating the Cause

Other balls returned after deep corrosion failure were etched and showed the grain of the ball to lie parallel to the direction of the long pits on the corroded balls. It was thought that these pits might be "seams" which had escaped the inspectors. Accordingly some "seamy" balls were taken from inspection and etched. Besides the "seams" marked by the inspectors, other short shallow "seams" were found. These resembled hairlines and were different from the customary seams remaining as unremoved from the surface of the original bars of steel. Accordingly one lot of these "seamy" stainless steel balls were reduced one-sixteenth inch in diameter, which should have removed all surface defects. The inspectors again picked out "seamy" balls while etched balls showed numerous hairlines. This indicated that the cause of these pits and "seams" was an internal defect in the steel and not a surface defect from the bars. To further determine this fact a ball containing two hairlines separated by only short smooth surface between their near ends was filed at this point. Other balls showed these hairlines after filing and before etching. This substantiated the theory that the cause of the pitting was in the steel before the balls were made.

Only a negligible quantity of these balls were picked out as "seamy." This proved the relationship between hairlines in stainless steel, the "seams" on the balls, and the pitted corrosion failure of the finished balls.

Research Work by Steel Makers

The matter of porosity and hairlines was taken up with the stainless steel manufacturers who immediately did intensive research work on the problem. By changing various items in their melting practice, raw materials, etc., a big improvement was made in the quality of stainless steel produced. The hairlines have been so decreased in size and number that they are found only occasionally after deep etching or careful polishing. By decreasing these heterogeneous areas in the stainless steel the number of centers for localized corrosion are decreased and the life of the metal is thereby increased.

A ball with a large corrosion hole was filed to determine the approximate depth of corrosion. Similar balls were cut through the pitted areas, given a light etch and examined. These longitudinal sections showed segregated areas along the centers of the balls connecting the two poles. Bars of steel that showed segregation on etched discs were cut through these areas.

Occasionally corroded balls have a mottled effect of pits on their surface not following any distinct pattern. It was found that these pits are caused by not removing sufficient material from the surface of the balls after heat treatment. Scaled areas, or those just beneath scaled areas, have a different electrolytic potential from the balance of the ball and therefore act as centers for localized corrosion. This necessitates the removal of all scale and pitted areas after heat treatment.

Flaking and Cracking

Poor heat treatment and forging practice do cause some cracking and flaking.

Actually internal steel defects and corrosion lower these apparent high impact values to figures which allow cracking and flaking of the balls. Numerous other flaked balls had similar hairlines across the flaked areas. As shown previously, hairlines are elongated blowholes or else contain material which etches out readily or can be filed out. Besides being a nucleus for corrosion failure, they appear to weaken the metal when they occur sufficiently near the surface of the balls to cause flaking.

Corrosion Fatigue

One failure was attributed to "corrosion fatigue" which has been studied by McAdam[4], Harvey[5] and others. Harvey reports that a .47 per cent carbon steel had a fatigue limit of 60,500 pounds per square inch in air and only 20,000 pounds per square inch in a stream of hydrant water. He also states that the so-called stainless steels have a corrosion fatigue limit about twice as high as ordinary structural steel but far below the endurance limit without corrosion. Portevin[6] writes: "Localized corrosion is characterized by nonuniform depth of attack and cannot be defined by the loss per unit of area. . . . Internal corrosion does not destroy the surface of an object but results in a layer of corroded metal underlying the surface and not having any strength. . . . The corrosion medium travels along the grain boundaries affecting some of the constituents and leaving others intact, or depositing on them the products of the reaction. . . . Without any change in dimension, loss of weight, or properties determinable by tensile testing, a metal may become very brittle, often only temporarily. This phenomenon is usually associated with the generation of nascent hydrogen on the surface of the metal."

As stated above, corrosion may weaken a ball by decreasing its cross sectional area, by weakening the intercrystalline strength, by the generation of nascent hydrogen, or otherwise. Thus cracking and flaking failure of stainless steel parts are closely linked with corrosion failures and require homogeneous material free from internal defects to give it a high corrosion resistance, and proper heat treatment to give it maximum strength or impact resistance for its particular application.

Heat Treatments on Stainless Steel

Several bars were selected from one heat of the material received for freedom from porosity and soundness. These bars were used in obtaining the heat treatment data given here. The analysis of one of these bars is:

Carbon	1.10%
Chromium	17.24%
Manganese	.36%
Silicon	.52%

These bars were in the hot rolled annealed condition as received.

Forging

This high carbon stainless steel must be handled carefully during the forging operations. It is best to preheat this steel to 1,450° to 1,500° F. so as to remove all preliminary strains and get the centers of the bars uniform in temperature. Its shearing range is narrow because is has a great tendency to tear off when cool or break off when too hot. It was found that temperatures above 1,900° F., depending upon the bar sizes, give the best results. Temperatures above 2,100° F. cause grain growth and are on the danger line for burning. Forging can be carried out at temperatures below the burning point of 2,200° F., but must be stopped when the material reaches 1,800° F. Below 1,650° F. this stainless steel is hard to work and is liable to cause cold working strains and forging cracks.

Cooling of Forgings

The forgings must be slow cooled and cannot be set outdoors in air currents

[1] "X-rays and the Constituents of Stainless Steel," by Edgar C. Bain in Transactions A.S.S.T., Volume 14, Pages 28-50, July, 1928.

[2] "Stainless Iron and Steel," Page 175, by J. H. G. Monypenny, published by John Wiley & Sons, Inc., New York City.

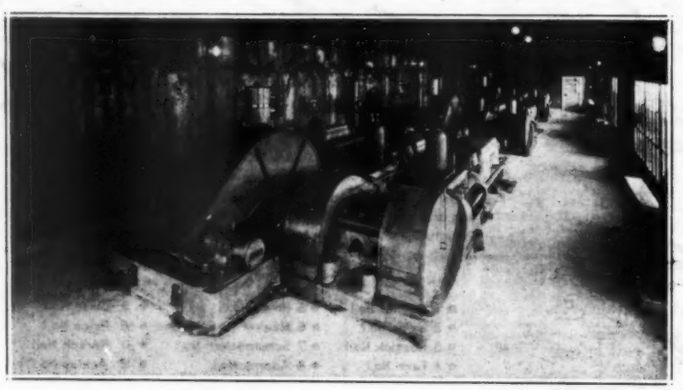
[3] "The Application of Science to the Steel Industry," Page 91, by W. H. Hatfield, 1928 Campbell Memorial Lecture, published by A.S.S.T.

[4] "Stress-Strain Relationship and Corrosion Fatigue of Metals," by D. J. McAdam, Jr., in Proc. A.S.T.M., 1926, Volume 26, Part 2, Page 224.

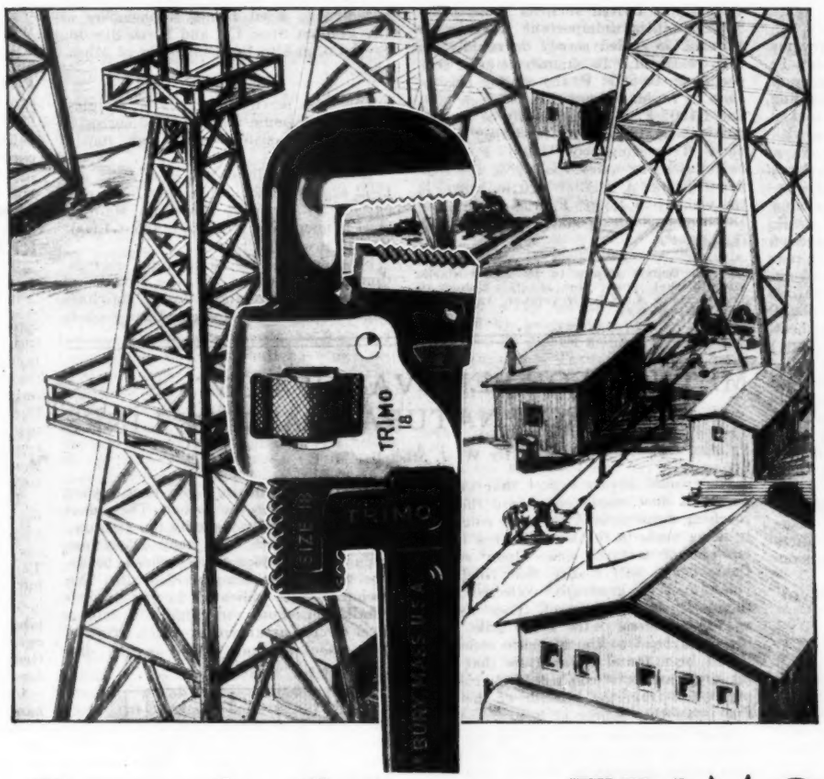
[5] "Zinc as a Protective Coating Against Corrosion Fatigue of Steel," by Wilbur E. Harvey in Metals and Alloys, Volume 1, Page 458, April, 1930.

[6] "Corrosion of Metals and Alloys," by Albert Portevin in Revue de Metallurgie, November, 1929, Volume 26, Pages 606-631, December, 1929, Pages 635-654, abstracted in Metals and Alloys, May, 1930, Volume 1, Page 522.

AJAX PIPE LINE STATION NEAR SPRINGFIELD, MO.



Three Prescott Co. reciprocating pumps.



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ALL STEEL **TRIMO** PIPE WRENCH

because fine cooling cracks or checks will appear on the surface if this stainless steel is cooled rapidly. Sudden chilling of the forgings will cause them to crack immediately or during subsequent heat-treating operations. It is preferable that the forgings be cooled in pans covered with silcool or other suitable insulating powder, as this has some spheroidizing effect on the carbides.

Normalizing

To insure that all forging and previous strains are removed the forgings can be normalized. It was found that moderate rate for heating the forgings, holding them at heat until they are soaked through, and cooling in pans covered with suitable insulating powder will have a beneficial effect in breaking up the large carbides into smaller spheroidized carbides. Of course a regular normalizing furnace is to be preferred wherever available. For this work a temperature of 1,600° F. gives the best results in actually affecting the carbides without causing grain growth and in eliminating any shrinkage or expansion that might otherwise occur during subsequent heat treatment.

Hardening

To determine the proper quenching temperature, pieces one-half inch thick were cut from bars 1.125 inches in diameter. These were heated to various temperatures from 1,800° F. to 1,950° F. and quenched in oil. These pieces were then polished, tested for Rockwell hardness, and cut in half for microstructure examination specimens. Table 1 gives the Rockwell hardness (C scale) values for the corresponding quenching temperatures:

TABLE 1—ROCKWELL HARDNESS OF STAINLESS STEEL SPECIMENS ½"x1⅛" DIAMETER

Quenching temperature in oil	Rockwell hardness C scale
1,800° F.	55-58
1,850° F.	56-59
1,875° F.	57-60
1,900° F.	61-63
1,925° F.	59-63
1,950° F.	59-62

The maximum hardness is reached at 1,900° to 1,925° F. and an increase in temperature does not increase the hardness.

The impact values for specimens hardened at 1,850° F. and 1,900° F. and not drawn are 0.625 and 0.80 foot-pounds, respectively. This further indicates that this stainless steel does not give its full impact resistance until quenched from 1,900° F.

Drawing Temperatures

After hardening, this high carbon stainless steel should be drawn to the required hardness. The hardness curves for this stainless steel greatly resemble those for high speed steel as they drop slightly at 400° F., rise to a peak at 500° F., drop again between 600° and 800° F., and reach another maximum at 900° F.

The impact curve rises slightly to a peak near 500° F. and drops off to a minimum at 1,000° F., from which it returns to its original value at 1,100° F. and probably continues to rise to the value of annealed material (4.0 foot-pounds) at higher drawing temperatures. This impact result agrees with similar notations by J. A. Mathews[7] on stainless irons who observed that "the impact resistance of stainless iron improves gradually with tempering temperatures up to about 800° F. From 800° to 1,000° F. is a range in which the impact resistance falls off materially and it is well to avoid this particular range of tempering. There is another reason for doing so, namely, that within this range hardness changes are rapid. With slight changes in temperature it would be difficult to control uniform hardness and physical properties within this range. Tempering from about 1,100° to 1,250° F. gives excellent physical properties including high impact resistance and the product is machinable when so tempered. In other words, the heat treating and tempering may be done first and the machining afterward. It has not been emphasized sufficiently that stainless iron is subject to temper brittleness when slowly cooled from the range of 1,100° to 1,250° F. When tempered within this range and slow cooled in the furnace, it is not unusual to find impact resistance from one-third to one-fourth of what it would be if the iron had been cooled from the tempering operation by quenching. It might be further stated that in tempering operations where high strength is desired such as those below 800° F. it is unimportant whether the material is cooled slowly or rapidly for this treatment. To summarize after tempering up to 800° F. the cooling may be slow or rapid. Tempering between 800° and 1,100° F. should generally be avoided particularly if the part is subject to impact. Tempering above 1,100° F. should be followed by quick cooling of the tempered parts. A similar brittle range in the vicinity of 1,300° F. was observed on 18 chrome, 8 nickel stainless iron by H. H. Lester[8].

[7] "Corrosion and Heat-Resisting Steels as Applied to Automobile and Bus Use," by C. M. Johnson in Proc. A.S.T.M., 1930.

[8] "The Brittle Range in 18 and 8 Chromium-Nickel Iron," by H. H. Lester in Transactions A.S.S.T., November, 1929, Volume 16, Page 743.

The specimens used in determining the impact values were three-eighths inch wide by one-fourth inch thick by 2 inches long with a square notch cut in them one-thirty-second of an inch wide and deep. They were broken on an Olsen 100-pound impact testing machine.

Acknowledgments

The authors of this paper are deeply indebted to Fred Blum, to members of the Ludlum Steel Co. and Firth Sterling Steel Co. and to the University of Michigan.

Summary

Oil well service demands a stainless steel of maximum hardness and corrosion resistance consistent with high impact values.

Rockwell hardness values of C-58 and C-62 are obtainable when this 1 per cent carbon, 17 per cent chromium stainless steel is quenched in oil from about 1,900° F. and properly drawn.

Steel defects such as hairlines, segregation and inclusions are the centers of localized corrosion and flaking. Hairlines originate from blow-holes and gas pockets formed in the steel ingots during the pouring operation and can be practically eliminated by proper care at the steel mill. Segregation of carbides will remain in this stainless steel after rolling and can be appreciably broken up by proper forging, normalizing and heat treatment.

Any scale or surface defects remaining on these stainless steel parts will be centers of localized corrosion. Improper forging temperature or heat treatment will increase the flaking and cracking and will decrease the corrosion resistance. Parts drawn between 825° and 1,075° F. are very brittle so that this range should be avoided.

This 1 per cent carbon, 17 per cent chromium stainless steel gives good service when properly handled at the steel mill and by the manufacturer of the finished parts.

METHOD FOR REMOVAL OF DUST FROM NATURAL GAS PIPE LINES

By W. J. Miskella, M. E.

One would hardly expect that the removal of dust would enter into the far-reaching developments that are constantly being made in the long distance transmission of natural gas. Upon second thought one will realize that finely divided dust is gradually collected from the rocks in the ground. Then as the gas flows along mile after mile from the casinghead to the ultimate consumer it has been found by analysis that dust in large amounts coming from rust in pipe scale from the interior of the pipe line is another source of loss.

Most executives are willing to pay "loads" but few of them care to transport sludge if it can be avoided. Not only that but it is destructive to pump cylinders and valves at booster stations; it cuts stop valves and reducing valves and even collects in the meter valve box, thereby slowing its operation and indirectly affecting the income of the system.

One method of removing this dust is by the use of a separator, a cross section of which is shown in Figure 1. The natural gas enters this separator, which, incidentally may be installed in any position, at the end indicated by the arrow. At "A" it encounters a stationary perforated plate which causes it to whirl centrifugally. The hub "B" acts as a vortex breaker while the rib "C" momentarily retards the forward motion of the dust and directs it out through "D" and "E" while the main supply of natural gas continues in the direction of the other arrow.

Thus it will be seen that this device contains no moving parts since the centrifugal action causes the dust particles to be thrown out into the dust pocket where it settles to the bottom. These dust pockets are usually made by the gas company in its own pipe shop. They are made of steel pipe with welded heads, pipe connections being welded also. The discharge pipe indicated in the typical installation shown in Figure 2 has a novel ejector arrangement which lifts the dust when the gate valve in the discharge pipe is open. Thus the dust may be caught in a bucket, with practically no loss of gas providing the valve is closed again as soon as the gas commences to blow through.

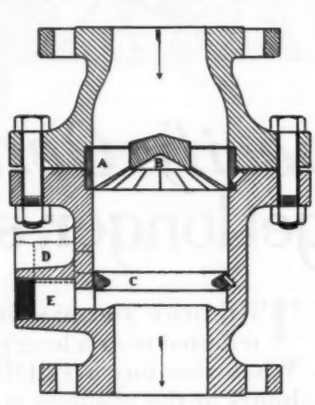

Figure 1—A cross section of the dust separator.

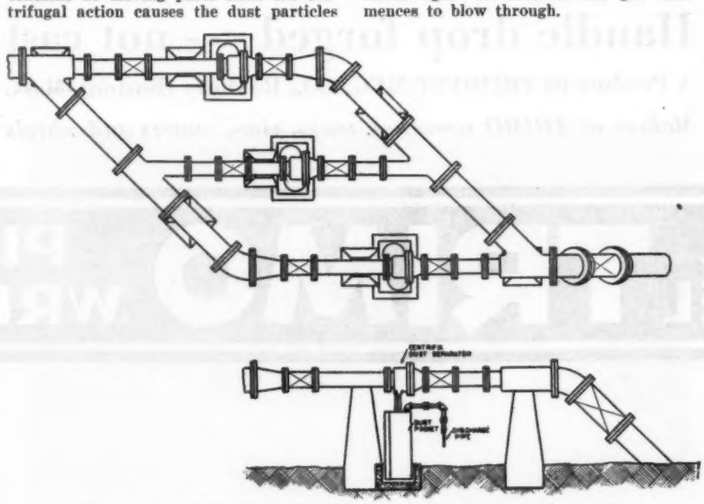

Figure 2—A typical "hookup" showing how dust separators are installed.

REPORT ON TIOGA GAS AREA BY GEOLOGIST

(Continued from Page 53)

Survey, namely, the Gaines folio covering the Gaines quadrangle and the Elkland-Tioga folio covering the Elkland and the Tioga quadrangles. These folios are out of print, but can be consulted at libraries. They present the general geology of this region and show by 100-foot contours on the top of the Chemung the character of the major structural features in most of the area that they cover.

The geology of the region adjacent to the area covered by the folios is mapped and described in publications of the Second Geological Survey of Pennsylvania. These publications also are out of print but may be consulted in libraries.

Topographic maps of the Gaines, Elkland and Tioga quadrangles may be procured from the Director, United States Geological Survey, Washington, D. C., for 10 cents each.

County maps of Tioga, Potter, Susquehanna, Sullivan, Lycoming, Clinton and Cameron Counties may be obtained from the Pennsylvania highway department for 50 cents each.

Drilling Situation

Each location that is now active is near the axis or on the flank of an anticlinal structure, but the geological data available do not permit us to define accurately the relative stratigraphic and structural favorability of the several locations.

The structures being drilled are very definite folds and have broad crest and show flank dips of the order of magnitude 8° to 12°. They appear to be essentially symmetrical, but with somewhat steeper east than west limb. The axes trend north of east, are sinuous and plunge and rise to form a series of domes and saddles.

Contours are drawn on the top of the Chemung, which horizon is as much as 1,900 feet higher on the anticline than in the adjacent synclines.

Erosion of the folds has resulted in broad bolts of Chemung being exposed on the crests of the anticlines. The Catskill contact commonly appearing far down on the flanks of the anticlines.

That part of the Chemung exposed at the surface consists chiefly of sandy shales and shaly sandstones with occasional thin beds of limestone. No well-defined horizon markers are known that would serve as reliable key beds in mapping this Chemung area. Moreover, while there are many excellent exposures on the steepened flanks of the folds on the broad crest of the fold where dips are relatively flat exposures are few.

Difficult to Locate

It is because of these three factors, namely, absence of good key horizons in the Chemung, scarcity of outcrops near the crest of the fold, and distance of the Catskill contact from the anticlinal axial areas, that is difficult to determine without doing detailed and specially directed work, just where the various locations are with respect to structure and stratigraphy. This is a subject of no little importance. One gas well does not make a gas field, but the locations now active should do much to tell the story in this region, provided the holes drilled are well placed, that their relation to structure is known, and that each reaches its ob-

jective. To place properly a well in this area requires careful geologic work. To prove the area, axial highs, saddles, terraced flanks and synclines all should be given a chance to contribute their share of information. The matter of objective is equally important. We know little about the sands of Chemung, but the general lithologic aspect of the formation suggests very strongly that lenticular strays are to be expected at any horizon and shows of gas encountered in wells now drilling indicate that such strays may carry some gas. It is improbable, however, that such sands will prove to be commercial, and from the standpoint of proving the field that is implied in the success of No. 1 Palmer, all wells should reach the No. 1 Palmer producing horizon.

The identification of the producing horizon of No. 1 Palmer should not prove difficult, provided the Onondaga line is persistent throughout the area. Should it fail to serve as an infallible key horizon, then appearance of gas sands among the overlying beds or lensing out of the No. 1 Palmer producing horizon may prove difficult of interpretation, unless some more scientific method of correlation than the one now in use is developed for these horizons.

It goes without saying that the most serious error possible in "wildcat" development of this kind is to stop a well-located hole too soon. Due consideration should be given to the fact that it would be very easy to make an error of 100 feet in deciding at what stratigraphic horizon in the Chemung a well starts, that allowance should be made for thickening in a series of sediments of Chemung lithology and that in the absence of productive sand at the No. 1 Palmer producing horizon, production might be expected. In addition, while faulting is not known to deserve serious consideration in this area, the fact remains that in any region of folding, stratigraphic thicknesses are likely to be appreciably modified at certain localities by multiple small slips or adjustment folds.

LINCOLN OFFERS PRIZES FOR PAPERS ON WELDING

Prizes aggregating $17,500 are offered by the Lincoln Electric Co., Cleveland, Ohio, in a competition designed "to increase the knowledge of the adaptability of arc welding to the industry." Entrants are to write papers under one of the following headings:

1. A description of a useful machine, structure, or building, previously made in some other way, that has been redesigned in whole or in part, so that arc welding is applied to its manufacture.

2. A description of a machine, structure, or building not previously made that has been designed in whole or in part to the use of arc welding and a description showing how a useful result is obtained which was impractical by means of other methods of manufacture. It is not necessary that the machine as redesigned should have been manufactured at time of writing of the paper.

Prizes are to be awarded as follows: First, $7,500; second, $3,500; third, $1,500; fourth, $750; fifth, $500; sixth, $250, seventh to forty-first papers, $100 each. Details regarding the contest may be obtained from the company.

EXTENDING TANK FARM

HOUSTON, Tex., Mar. 16.—Atlantic Pipe Line Co., which recently acquired the pipe line system of the Gulf Coast Pipe Line Co., extending from the Refugio Field to Harbor Island, including deep-water loading facilities and tank farm, is starting the construction of three additional 80,000-bbl. tanks at the Harbor Island tank farm.

CANADIAN OIL PRORATION

WINNIPEG, Manitoba, Mar. 14.—Restriction of wells in the Turner Valley Field to 40 per cent of their open flow with further study to determine what permanent policy is best for conservation of waste gas in that area became a certainty before the legislature, following a conference of oil leaders.

BILL IN LEGISLATURE OF TEXAS WOULD LIMIT PIPE LINE RETURN

AUSTIN, Tex., Mar. 16.—Hearing on the bill by Representative Young of Wellington proposing to limit earnings of pipe line companies to 10 per cent has extended over several days. The text of the bill follows:

Be it enacted by the legislature of the State of Texas:

Section 1. The basis for all rates charged by common carriers by pipe lines within this State shall be such as will provide a fair return upon the aggregate value of the property of such carriers as a whole, held for and used and useful in the services performed by such common carriers by pipe lines after providing for proper and reasonable operating expense under honest, efficient and economical management and after providing for a reasonable allowance for depreciation of equipment used and useful in the services performed. In determining the rate of depreciation the Railroad Commission of Texas shall have due regard to the past and probable life of the equipment and probable life of the fields served. In determining what constitutes a fair return on such investments the commission shall give due consideration to the results of operations of all common carriers by pipe lines within this State for a period of three years next preceding the date of any inquiry it is making and a fair return is hereby declared to be no less than 6 per cent nor more than 10 per cent of the fair aggregate value of all of the properties of all such carriers necessarily employed and used and useful in the services performed by them.

Section 2. Immediately after this act shall have become effective it shall be the duty of the Railroad Commission of Texas to inquire into and determine the actual value (which shall include only the value of the properties used in the performing of services by common carriers by pipe lines under honest, efficient and economical management) of all pipe lines now existing. The Railroad Commission shall likewise determine what in each instance is a reasonable amount of working capital for each pipe line. Likewise, hereafter the Railroad Commission shall inquire into and determine the necessary investment and working capital of all common carriers by pipe lines hereafter built within the State of Texas and for the purposes of such inquiries the Railroad Commission of Texas, or any of its legally authorized agents, shall have the power to demand and obtain access to all of the books and records of all persons, corporations, firms and associations owning any common carriers by pipe lines within this State, and to examine into all such books and records, and to require the attendance and testimony of witnesses at hearings held for the purpose of inquiring into such matters in the same manner as now provided by law for requiring the attendance and testimony of witnesses at hearings before the Railroad Commission.

Section 3. As quickly as the Railroad Commission of Texas can obtain such necessary information, it shall fix and establish rates for all common carriers by pipe lines within this State on the basis herein provided, and by rates is meant to include the charges made by common carriers by pipe lines for the character of service furnished by them including transportation charges both single and joint line, gathering charges, deduction for evaporation and shrinkage, demurrage or storage charges and every other character of charge provided for in a tariff: Provided that the commission shall have reasonable latitude to modify, or adjust any particular rate which it may find to be unjust, or unreasonable, or discriminatory. In making, promulgating or altering any such rates or charges, the Railroad Commission of Texas shall give due consideration, among other things to the transportation needs of the State, and the public convenience and necessity under honest, efficient and economical management of existing transportation facilities of enlarging such existing facilities in order to provide the people of the State of Texas with adequate facilities for transportation by pipe lines.

Section 4. Before establishing and promulgating any such rate the Railroad Commission of Texas shall hold a hearing or hearings as to each common carrier by pipe line, and all such hearings shall be held pursuant to notice as provided by Article 6,038 of the Revised Civil Statutes of Texas; and any order establishing, prescribing, or modifying any such rate or rates shall be issued only after hearing upon like notice as provided in said article.

Section 5. Any person or party at interest in the establishing, prescribing, promulgating, or modifying any such rate who is aggrieved by any order of the Railroad Commission of Texas entered pursuant to this act may have such order reviewed by proceedings in the manner prescribed by Article 6,453 of the Revised Civil Statutes of Texas, and the proceedings upon appeal shall be in like manner as prescribed by Article 6,453.

Section 6. When a rate shall have been fixed the Railroad Commission shall have the authority to revise such rate at any time, after hearing as hereinabove provided for. It shall likewise be the duty of the Railroad Commission of Texas to inquire into and revise where necessary, all rates on common carriers by pipe lines within this State each 12 months after the first rates provided for herein have been fixed and promulgated.

Section 7. The Railroad Commission on application of any common carrier by pipe line, and after a hearing, shall have authority to permit such carrier by pipe line to lower its rate so as to operate on an equal basis with a competing carrier performing the same or a similar service.

Section 8. No common carriers by pipe line within this State shall hereafter abandon any of its connections or lines except under authority of a permit granted by the Railroad Commission. Before granting any such permit the Railroad Commission shall issue notice and have a hearing as now provided for in Section 6,038 of the Revised Civil Statutes of Texas for 1925.

Section 9. The invalidity of any section of this act or part thereof, shall not affect the remainder of such act, and it is hereby declared that the legislature would have passed any section or provision hereof independent of all other sections or provisions.

Section 10. This act shall be construed as cumulative of all other non-conflicting laws now in force.

Section 11. The fact that the present laws do not provide a basis for the establishment of pipe line rates within this State and the fact that there exists at this time exorbitant and discriminatory rates and the crowded condition of the calendar creates an imperative public necessity and requires that the constitutional rule requiring all bills to be read on three several days be suspended, and the same is hereby suspended, and that this act take effect immediately upon its passage; and it is so enacted.

SARAWAK HAS 1,000 OIL WELLS

There are now more than 1,000 oil wells under production at Sarawak, Borneo, one-third free flowing and the others pumped or bailed, according to advices received in the Department of Commerce from Assistant Trade Commissioner Carl H. Boehringer at Batavia, Java.

Most drilling is by steam power or rotary drilling tools. It is reported that almost all of the wells come in with a large amount of gas, most of which is allowed to run free at present. A topping plant is located at Lutong, but no high-grade refining is done. Natural gasoline is extracted, the remaining stripped gas being used to run the plant. Ocean-going vessels receive oil through pipe lines; it is reported that British, Japanese and American naval vessels have bunkered here.

RESEARCH COMMITTEES TO MEET IN NEW YORK

Plans for continuance of certain projects in the American Petroleum Institute's program of fundamental research in petroleum will be formulated at meetings to be held by research committees at institute headquarters in New York March 24 and 27. The Advisory Committee on Fundamental Research on Composition and Properties of Petroleum will meet Tuesday, March 24. The Advisory Committee on Fundamental Research on Occurrence and Recovery of Petroleum will meet Thursday, March 26.

Four new proposals and continuance of Projects 6, 7, 8, 18, 28, 29 and 41 will be considered by the committee interested in composition and properties. J. Bennett Hill, Atlantic Refining Co., is chairman, and R. P. Anderson, American Petroleum Institute, is secretary. Members are: H. A. Curtis, Vacuum Oil Co.; Robert G. Griswold, Henry L. Doherty & Co.; R. A. Halloran, Standard Oil Co. of California; R. E. Haylett, Union Oil Co. of California; C. O. Johns, Standard Oil Development Co.; K. G. Mackenzie, The Texas Company; A. E. Miller, Sinclair Refining Co.; L. W. Parsons, Tide Water Oil Co.; A. E. Pew, Jr., Sun Oil Co.; D. Pyzel, Shell Oil Co., San Francisco; J. B. Rather, Standard Oil Co. of New York; F. M. Rogers, Standard Oil Co. (Indiana); Herschel G. Smith, Gulf Refining Co., and C. R. Wagner, Pure Oil Co.

Harry H. Hill, Standard Oil Development Co., is chairman of the committee interested in occurrence and recovery, with Carl A. Young, American Petroleum Institute, Dallas, Tex., as secretary. Members are: K. C. Heald, Gulf Cos.; F. H. Lahee, Sun Oil Co.; G. V. D. Marx, Standard Oil Co. of California; Alexander McCoy, E. W. Marland Co.; C. V. Millikan, Amerada Petroleum Corp.; K. B. Nowels, Forest Oil Co.; Sidney Powers, president, American Association of Petroleum Geologists; R. D. Reed, The Texas Company of California; H. B. Soyster, United States Geological Survey, and H. D. Wilde, Jr., Humble Oil & Refining Co.

COLOMBIAN CONGRESS IS STUDYING OIL CONTRACT

BOGOTA, Colombia, Mar. 14.—The text of the contract between the Colombian government and the Colombian Petroleum Co. and South American Gulf Oil Co., providing for exploitation of the Catatumbo region, has been made public. The contract is now under consideration in congress.

The agreement stipulates that development of the land begin within two years; that the companies construct a pipe line through Colombian territory to the sea coast, that at least 75 per cent of the employes of the companies be native Colombians, and that the concerns pay the government $25,000 upon being awarded the contract. The contract carries a large number of clauses, violation of any of them being sufficient grounds for its annulment.

The South American Gulf Oil Co. owns 75 per cent of the stock of the Colombian Petroleum Co., and the Carib Syndicate, Ltd., the remainder.

DRILLING IN MISSOURI

CAMERON, Mo., Mar. 14.—Messler Gas Co. of Kansas City began drilling for gas southeast of the Oakland school, 1 mile west of Kerr, this week. This company has leased several thousand acres of land in the vicinity of Kerr, Turney, Lathrop and Fordham, and in the past 13 months has developed 62 wells. Several of the farmers south of Cameron are using gas for cooking, lighting and heating.

PENN-YORK BUYS LEASE

BRADFORD, Pa., Mar. 14.—Sandy Oil Co. has sold its oil lease at Rock Run, town of Alma, N. Y., to the Penn-York Oil Corp. of Olean, N. Y. The property consists of 125 acres in fee with 38 producing wells.

Pipe Line Construction News

CAPPER PIPE LINE BILL SUBJECT OF CONFERENCE

TOPEKA, Kans., Mar. 14. — Public utilities commissioners from many states will meet in Chicago next week to put final touches on the revised Capper gas pipe line control bill.

Senator Arthur Capper introduced the measure in the recent session of Congress, but some of the state public service commissioners believed existing rights exercised by the states were not safeguarded under its terms. It was agreed at St. Louis last January the bill should be given careful study and redrawn to guarantee states' rights.

Members of the Kansas commission, including Clinton H. Montgomery, chairman of the redrafting committee, Charles M. Steiger and E. H. Hatcher, attorneys for the commission, will attend the Chicago meeting. Members of the legislative committee of the National Association of Railroad and Utilities Commissioners will be asked to approve the new control measure.

The Capper bill was intended to place the natural gas pipe lines under the jurisdiction of a federal commission with powers corresponding to those exercised by the Interstate Commerce Commission over the railroads. It is designed to control city gas prices of the pipe lines in delivering gas to distributing companies and to analyze pipe line financing.

Members of the Kansas commission say they believe the wording and form of the original Capper bill will not be altered essentially in the conference.

The meetings in Chicago will be held in the rooms of the Illinois Commerce Commission.

AMARILLO DISTRIBUTION LINE

AMARILLO, Tex., Mar. 16.—The city of Amarillo is to lay a total of 246½ miles of new gas main throughout the city due to its recently signed contract with the Huber Petroleum Corp. for its gas supply, and its withdrawal from the Amarillo Gas Co. The entire new distribution system is to be completed before October 1, 1931. There will be 344,980 feet of 10-inch line laid and 961,000 feet of 4 and 6-inch lines. There will also be duplicate 10-inch double length gas mains (high pressure and low pressure) welded. There will be 56 regulating stations in the distributing system to reduce the pressure to the consumers' specifications. The city will advertise for bids on the contract to furnish material for the system.

WAYNE UNITED LINE COMPLETED

The new pipe line of Wayne United Gas Co., extending from the Morgan County, Kentucky, natural gas field, to West Liberty, Ky., has been completed and is now in operation, according to announcement of H. E. Danner, vice president of Appalachian Gas Corp., the parent company. The company's new Morgan County compressor station also has been completed.

The output of 18 wells is now being delivered through the new pipe line to Kentucky-West Virginia Gas Co., for transmission to Louisville, Ky., under sales contract signed recently which calls for delivery of 2,000,000 feet of natural gas per day this winter, and 5,000,000 feet daily next winter.

PILOT POINT LINE

PILOT POINT, Tex., Mar. 14.—Thurber Pipe Line Co., subsidiary of Texas Pacific Coal & Oil Co. of Fort Worth, has completed its pipe line from the Pilot Point Pool in Cooke County and oil is now being moved to a loading rack.

SUN GASOLINE LINE NEARING LAST STRETCH

SYRACUSE, N. Y., Mar. 16.—The actual construction work on the last section of the 300-mile gasoline line being built by the Sun Oil Co. from Marcus Hook, Pa., on the Delaware River some 15 miles south of Philadelphia to Syracuse, N. Y., is expected to be started within six weeks.

It is estimated that three months later motor fuel for consumption will be available in Syracuse, N. Y., and other points north, west and east, which will be delivered through the line.

Susquehanna Pipe Line Co., affiliated with the Sun Oil Co. in the construction of the pipe line, has completed the line from Marcus Hook through to Penn, N. Y., which is located on the state border at a point about 20 miles south of Johnson City. The additional 100 miles of pipe line to Syracuse will be constructed by the Sun Pipe Line Co. Practically all the rights of way have been obtained for the New York State end of the line under the laws of New York State.

NORTHERN NATURAL MAKES RAPID PROGRESS

FORT WORTH, Tex., Mar. 16.—Northern Natural Gas Co. has made rapid progress in putting down its lines since it started construction work in the spring of 1930. The company already has 900 miles in operation of a total projected 2,691 miles and is continuing to push construction as fast as conditions permit.

The main line, which is of 24-inch pipe, now extends from the Amarillo gas field of Texas to a point near Fort Dodge, Iowa. A 20-inch line will be completed to Mason City, Iowa, by April 1.

Ownership of Northern Natural Gas Co. is distributed among three companies: North American Light & Power Co. owns 35 per cent of the capital stock; United Light & Power Co., 35 per cent, and Lone Star Gas Co., 30 per cent.

Of the projected 2,691 miles of gas lines to be completed within the next four or five years, 1,877 miles will be main lines and 814 miles will be branch lines.

The cost of the entire project is estimated at $75,000,000. As soon as the company can obtain contracts with the distributing companies which hold gas franchises in Minneapolis and St. Paul, it will extend its lines to those cities. Negotiations looking to that end already have been begun.

SAN ANGELO CONTRACTS

FORT WORTH, Tex., Mar. 16.—Under contracts awarded last week, Allhands & Davis of Dallas will string the pipe for 78 miles of 12-inch line from the Big Lake Field eastward to San Angelo and for 40 miles of 8-inch line from the field westward to Rio Pecos. This work is expected to begin early this week. The lines will be operated by the Texas Public Service Co., successor in Texas to the Oklahoma Natural Gas Corp.

SOUTHERN FUEL CONTRACT

SAN FRANCISCO, Calif., Mar. 14.—Western Pipe & Steel Co. reports an order has been placed by Southern Fuel Co., jointly owned by Southern California Edison Co. and Pacific Lighting, for $1,500,000 of steel pipe for a natural gas line from Kettleman Hills to Long Beach. This pipe will require more than 15,000 tons of steel plate, shipments of which will be started shortly from eastern mills. Western Pipe & Steel will install new equipment for fabricating electric welded steel pipe for natural gas lines.

PIPE LINE ACTIVITY IN RUSK AND GREGG

FORT WORTH, Tex., Mar. 16.—The Butler-Calhoun Pipe Line Co. of Corsicana has completed its survey for 6½ miles of 6-inch line from the Anderson and others' lease on the Thrash farm in the Maria Josefa Pru Survey in the Joiner Field, Rusk County, to London, thence to Overton where a loading rack is being constructed, from whence oil will be shipped to the Kent Refining Co.'s plants at Minerva and Angus. These were formerly the Central Texas Refining Co.'s properties. A million-barrel contract has been signed between the producing, pipe line and refining parties, and this line will carry and load the oil at Overton.

The Magnolia Pipe Line Co. has completed a little over 25 miles of its acetylene welded 10-inch line from Gregg County to Center Station in Shelby County, and has had slow going because of heavy rains, making it difficult to truck in materials and pipe to locations.

The Pure Oil Pipe Line Co. has completed 42 per cent of its survey from Teague (Colonel) Station in Freestone County toward the Joiner Field, Rusk County. Nothing further is known about the contemplated line by this company.

YOUNT LEE CO. LINE FROM GREGG RUMORED

FORT WORTH, Tex., Mar. 16.—Construction of a pipe line from the Lathrop area in Gregg County to the Gulf Coast is probable following the purchase by the Yount-Lee Oil Co. of the interests of John Farrell and associates in the Farrell-Lathrop well and leases.

The pipe line would be approximately 210 miles long, giving a cost of $13,000 a mile, or $2,700,000. Gathering lines, pump stations and other necessary construction would bring the total to over $3,000,000.

This would greatly increase the amount of oil which could be moved from the field. The daily total involved now is about 55,000 bbls., it was reported.

ARKANSAS NATURAL LINE TO START APRIL 1

SHREVEPORT, La., Mar. 16.—Arkansas Natural Gas Co. will receive bids in its Shreveport office March 18 on 8-inch pipe line from its Gregg County production in East Texas to Shreveport. Pipe has been ordered and actual construction is to begin not later than April 1 and be completed by May 15. Daily capacity at the beginning is to be 16,000 bbls.

NEW OIL TERMINAL

HOUSTON, Tex., March 16.—Construction of a new oil terminal at Harbor Island, Port Aransas, is to be started in the near future by the Gail Borden Munsill interests. The loading docks which will adjoin those of the Humble Pipe Line Co., will be 402 feet long and will handle the large tankers. Loading facilities will include electrically driven pumps and will have a capacity of 15,000 bbls. hourly.

STARTS BOZEMAN LINE

CASPER, Wyo., Mar. 14.—Ohio Oil Co. is starting work on its natural gas pipe line from the Dry Creek Field in southern Montana to Bozeman and other nearby towns. Material for river crossings has been ordered and will be put in at once. It is expected work will begin on the main line early in April. Operations will be carried on under the name of the Ohio Oil Co., which has opened offices in Bozeman.

PROPOSED GAS LINE TO WYOMING TOWNS

DENVER, Colo., Mar. 16.—The Wyoming Public Utilities Commission has set April 13 as the date for a hearing on the application of C. E. Bivens for a permit to build a gas line from the Baggs structure in Carbon County eastward to Laramie and Cheyenne. The proposed line will be about 160 miles long. Mr. Bivens and associates do not propose to retail the Baggs gas if granted a permit, but to deliver it at the city gates of Laramie and Cheyenne. The Laramie Gas Co., the local distributor in the city of that name: the North Central Gas Co., which has received bids for its Nebraska line, but has not yet awarded the contract, and the Colorado-Wyoming Gas Co., which pipes gas through Colorado from the Amarillo Field to Cheyenne, where an affiliated company is the distributor, have filed protests with the commission against the granting of the permit.

S. Marvin James, University Building, Denver, is affiliated with Mr. Bivens in the proposed line from Baggs. An unusual factor entering into the situation, as explained by Mr. James, is that the Wyoming commission holds that when gas produced in Wyoming is available at reasonably comparative rates, it is to be given preference to gas brought from tity in terms of domestic crude oil is without the State and that in such an event, 75 per cent of the total gas used must be obtained from the Wyoming fields. The North Central company does not propose to tap Cheyenne with its line, but does plan to build to Laramie. Its supply of gas will come, however, entirely from Wyoming fields. On the contrary, the Colorado-Wyoming Gas Co., which now delivers gas to Cheyenne, obtains its entire supply outside of the State and, if the position of the commission is sustained, its customer, the Cheyenne Light & Power Co., an affiliated concern, might be compelled to buy three-fourths of its gas from the other company.

PIPE LINE HEARING POSTPONED

CHICAGO, Mar. 16.—Hearing before the Illinois Commerce Commission on the application of the Panhandle Illinois Pipe Line Co. for a certificate of convenience and necessity has been postponed until April 8 on motion of the petitioner.

The application was originally made on August 22, 1930. Panhandle Illinois Pipe Line Co. is owned by Missouri-Kansas Pipe Line Co. and Columbia Gas & Electric Corp.

MISSOURI-KANSAS LINE

The Missouri Valley Pipe Line Co. has unloaded material for its Mullinsville, Kans., compressor station on its Panhandle-Iowa 24-inch gas line, and is starting construction of the station at once. Three 170 horsepower Cooper-Bessemer and four 262 horsepower Worthington uniflow steam engines will be used in this station. The line is to be completed around April 1.

NORTH CENTRAL GAS LINE

CASPER, Wyo., Mar. 14.—L. L. Langworthy of the pipe line department of the Midwest Refining Co. has resigned to accept a position with the North Central Gas Co. Mr. Langworthy will probably have charge of construction work on the company's pipe line. William H. Tolhurst, formerly in the engineering department of the Standard Oil Co. of Indiana, with Casper headquarters, is to be employed on construction work of the new system.

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Central Ohio Has Six Completions

Nine New Locations and 14 Wells Started Rigging or Spudding. Southern Indiana Active. No Completions in Illinois

By George A. Whitney
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Mar. 16.—The Ohio Fuel Gas Co.'s No. 1-5,408 H. L. Oats farm, Section 5, Pleasants Township, Hardin County, is reported showing for a light pumper in the Trenton lime from 1,326-49 feet. In Cessna Township, same county, the Appalachian Gas Corp., which purchased the holdings of the Kemrow Co., is reported starting the second test on the Arthur W. Kreitzler farm, Section 2. In the same township, Neely & Underwood are starting a test on the John Orth farm, Section 1, same township. In Tymochtee Township, Wyandot County, Jones & Coyle abandoned their second test on the Mary Chaney farm, Section 8.

CENTRAL OHIO

In the Central Ohio Field there were but six completions reported, of which five were gas producers and one dry hole. This is the first time for years that no oil well was found in any week. There were 9 new locations made and 14 wells started rigging up or spudding, a total of 23 in new work.

In Ashland County, the Appalachian Gas Corp. made a location on the Kent Welch farm, Section 7, Jackson Township.

In Medina County, Edson Sons Co.'s No. 15 Marcus A. Frank farm, Lot 20, Chatham Township, was dry from 445-73 feet.

In Cochocton County, Perry Township, the Preston Oil Co. is starting three new wells: No. 1-1,476 Clay Tattan farm, Section 15; No. 1-1,477 W. A. Little farm, Section 17, and No. 1-1,478 Charles O. Mercer farm, Section 5. The Ohio Fuel Gas Co. is drilling deeper No. 1-5,478 on the George M. Oxley farm, Section 25, same township.

In Summitt County, Greene Township, East Ohio Gas Co. is drilling No. 1 C. C. McCue farm, Section 19, and Smith and others are starting a well on the J. R. Layman farm, same section.

In Licking County, the Preston Oil Co.'s No. 1-1,466 on the Marion Leasure farm, Section 6, Hopewell Township, is showing for a nice oil well from 3,241-91 feet. G. H. Long is drilling No. 3 Granville Ashcraft farm, Section 22, Fallsburg Township. Wehrle Gas Co. is drilling No. 4 L. S. Robinson farm, Section 7, Bennington Township.

In Muskingum County, Washington Township, the Wittmer Properties, trustee, has what shows for a fair gas well in a second test on the Thomas J. Chaplin farm, in the fourth quarter section, at a depth of 4,058 feet. Atha Oil Co. is drilling on the A. M. Doty farm, Section 12, same township. Same party has been delayed by a fishing job in No. 1 Carl W. Riley farm, Section 11, Perry Township, same county, at a depth of 3,930 feet, but is now reported at 4,126 feet.

In Athens County, Cannan Township, C. W. Nuzum and others have a light gas well in No. 2 August Brechtel farm, fractional Section 3, in the lower Berea sand from 1,394-1,408 feet, total depth 1,415 feet. Standard Natural Gas Co.'s No. 1 William Roach farm, Section 7, York Township, is a fair gas well at a total depth of 1,184 feet. Porter Brothers are drilling No. 10 on the Hocking and Athens Coal Co.'s land, Section 35, same township. In Berne Township, Gifford and others have a very light gas well in No. 2 George E. Wyatt farm, Section 31, in the lower Berea sand from 1,408-35 and 1,443 feet.

In Tuscarawas County, Oxford Township, the Oxford Oil & Gas Co. has a fair gas well in No. 4 on the Phil Lamneck farm, Sections 21-22, in the Niagara lime at 3,654 feet.

Stark County is attracting some attention. F. A. Brendail and others are starting No. 2 on the Lake Cable Co.'s land, Section 14, Jackson Township, also No. 1 Harry Haymaker farm, Section 23. Wiser Oil Co. is starting No. 1 on the G. W. Slagle allotment, Section 26, and Medford Oil & Gas Co.'s No. 2 John Firestone, Section 35.

In Guernsey County, Millwood Township, George Jewell and others are drilling on the Lillian C. Stewart farm, Section 29.

In Belmont County, Somerset Township, Central Gas Co. is drilling on the H. B. and R. E. Mann farm, Section 7, and W. C. McBride, Inc., is drilling a second test on the Carrie J. Smith farm, same section.

INDIANA

In the old Trenton Rock area of Indiana, R. D. Hance drilled a test in the southeast corner of the Henry Ohler farm, SE, Section 22, Madison Township, Jay County, and found a 3-bbl. pumper. Henderson Brothers were the drilling contractors.

An interesting find was that of the James H. Gardner Petroleum Co. in a test 660 feet from the south and east lines of the Hall farm, NW, Section 14. Busseron Township, Knox County, which showed a gas volume of 400,000 feet. Same company is drilling on the J. P. Beard farm, SW, Section 10, same township.

Petroleum Exploration Co. drilled a dry hole on the Mahala Baxter farm, Section 20, Salt Creek Township, Monroe County, at a depth of 730 feet. Same company is reported drilling on the M. G. Barrow farm, Section 5, Benton Township, same county. Saddle Creek Oil Co. is shut down on top the Trenton lime formation on the Durbin Hessler farm, Section 4, Polk Township, same county.

James E. Young is drilling a second test on the Sarah Stansell farm, Section 23, Washington Township, Pike County, also drilling No. 3 on the Matilda Bilderback farm, same section.

James C. Ellis is reported to have found a dry hole on the T. K. Martz farm, Section 32, Curry Township, Sullivan County, while in Turman Township, H. Huntsman and others found a fair gas well in a second test on the Katherine Piety farm, Section 7, at a shallow depth of 350 feet.

The southern part of Indiana is attracting some attention as Conyers, Roetzel and others report their No. 3 on the Frank Cassidy farm, NW, Section 30. Clark Township, Perry County, and north of the Owensboro Field, showed an initial of 30 bbls. at a shallow depth of 265 feet. Same parties' test on the Alvin Franchville farm, NW, same section and county, produced 20 bbls. initially the first 24 hours. Same parties are drilling No. 1 Lee Aders farm, SW, Section 19, same township. Seitz and others' test on the Isaac Seibert farm, Tobin Township, same county, by going deeper drilled into a body of salt water, which means a dry hole so far as oil or gas is concerned.

Vanderburg County, in the extreme southwestern part of Indiana, is looking for an active development the coming summer. The Vanderburg Oil Co.'s No. 2 on the George Hornby farm, SE, Section 32, Center Township, showed for a 5-bbl. producer. Just recently 33 leases for oil and gas, controlling approximately 3,000 acres of land, were filed with County Recorder Lee Lintzenich. Approximately 1,000 more acres of Vanderburg County land are known to be under lease, John L. Drake, geologist, said, but no papers have been filed with the recorder yet. Approximately half of the leases filed have been given Perry E. Tichenor, who, with others, has been actively engaged in the development of the Western Kentucky Field in recent years. Mr. Tichenor recently opened a new field in western Kentucky as a private venture. Twelve leases, totaling approximately 1,000 acres, were filed by W. A. Owens, L. W. Barnett and William Ralph Reynolds of Poseyville, and five leases were filed by R. E. Wilson, R. A. Keck and V. D. Smith. The Poseyville firm is reported to be moving a drilling rig to its recently acquired Vanderburg County land from a well in Posey County that proved to be a dry hole. The rig will be put in operation at once, according to reports. Leases that are known to have been acquired but not filed are those of Leighty & Timberlake, Centralia, Ill., firm.

The greater portion of the land under lease in Vanderburg County lies east and north of that controlled by the Vanderburg Oil Co., whose three wells brought in recently opened the field. The lands controlled by Tichenor are north of the city of Evansville and lie close to some of the land leased by the Vanderburg Oil Co. The leases taken by the Poseyville firm, Leighty & Timberlake, and Wilson, Keck & Smith lie east and north of the discovery wells.

Mr. Drake, who located the three successful wells for the Vanderburg Oil Co., forecast much activity in the new field by the summer months. The Vanderburg Oil Co. is planning to drill another well as soon as the location can be decided. Mr. Drake said, and will continue to develop its holdings. He also said he had been informed by others who hold leases that rigs will be brought to the new field in the immediate future and put to work.

ILLINOIS

No completions were reported during the week in any area of Illinois. There are but four wells under way in the Dupo Field in St. Clair County and southeast of East St. Louis. The four under way are John Lutton's No. 2 Fee, Section 17. Sugar Loaf Township; Hans Wolf's No. 3 Oliver Anderline, Section 33; Ritter and others' No. 1 William Schreiffler, in the Millstadt area, Survey No. 5, and C. H. Bayliss and others' No. 1 Clyde Sparks, in the Centerville section, Survey 45.

Abandoned wells in Lawrence County have been numerous of late. In Petty Township, the Ohio Oil Co. abandoned No. 20 C. L. Lewis farm, SW, Section 20, and No. 51 W. R. Crackel farm, NE. Section 29. Same company abandoned No. 1 S. J. Gee farm, SE, Section 24, Dennison Township, as well as the farm being abandoned as a whole. In Lawrence Township, same county, the same company abandoned No. 2 Thomas Smith farm, SE, Section 14, while Snowden & McSweeney abandoned No. 2 H. K. Seed farm, NW, Section 29, Bridgeport Township, same county.

Only two wells are reported under way in the Allendale Field of Wabash Township, Wabash County, being Robinson Oil Co.'s No. 2 Adam Schaffer farm, Section 15, and a rig is up for No. 3 on the William Schaeffer farm, for the same company and same section.

No report has been received of late as to the wildcat being drilled by the Northern Illinois Oil & Gas Co. on the Mrs. Elizabeth Taylor farm, 8 miles southwest of Belveder, in Boone County, in the northern part of the State.

KENTUCKY

According to the Times-Journal of Bowling Green, the sale of crude oil in Warren, Allen and Simpson Counties, in southern Kentucky, has again ceased, according to an announcement by the Ohio Oil Co., stating that the sale of the crude to the Standard Oil Co. of Kentucky has ceased, and that no more crude will be taken from this section until another market is secured. The storage capacity of the Standard Oil Co. of Kentucky is filled.

The Ohio Oil Co. has taken and shipped since January 15, when oil activities were resumed, 1,000 bbls. of crude daily from Warren, Allen and Simpson Counties.

The order stopping the production of oil in the Bowling Green Field will not affect production in the Owensboro Field. it was indicated at the Owensboro office of the Illinois Pipe Line Co. which has been handling approximately 800 bbls. of crude per day from Warren, Allen and Simpson Counties. The Illinois Pipe Line Co. and the Producers Pipe Line Co. are handling between 6,000 and 7,000 bbls. of crude per day from the Owensboro Field. New crude prices in western Kentucky, including the Owensboro Field, are 75 cents per barrel, the price that was announced on Friday, March 6.

Oil production in Ohio, Daviess, Hancock, McLean, Henderson and Muhlenberg Counties for January totaled 261,499.24 bbls., with a valuation of $281,189.20, distributed by counties as follows: Ohio County, 150,106.40 bbls., val-

(Continued on Page 88)

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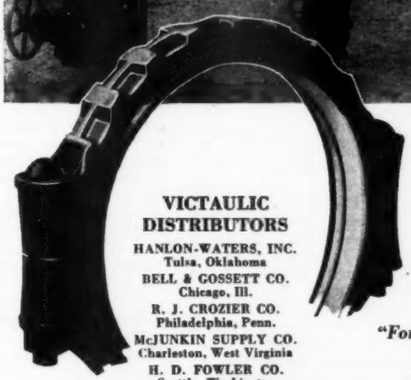
EMER TYPE-22

Active Oil Men Snapped by The Journal's Cameras

1—Left to right: W. J. McFarland, operator; Charles Darling, repair man; W. H. Swindell, chemist; D. G. Thoes, plant superintendent; A. C. Walker, assistant superintendent; C. C. Ells, construction department; H. V. Turner, construction department; R. J. Pierce, treater; J. A. Dyer, repair department; D. Day, repairs; and John Hodges, loader, Empire gasoline plant, Pampa, Tex. 2—W. W. Leach, engineer, The Texas Company, Henderson, Tex. 3—D. L. Collins, Lewis Germany, and "Top" George, T. T. Word Supply Company, Joinerville, Tex. 4—H. T. Bonar, representative, Hanlon-Waters, Inc., Fort Worth, Tex. 5—Left to right: G. J. Alexander, driller; A. L. Wilson, K. M. Jewell, and J. N. Grisham, Roy I. Carter Drilling Company, Joiner Pool, East Central Texas. 6—M. L. May, W. W. Holland, and A. C. Page, of the Overton Pipe Line Company, Rusk County, Texas. 7—Group of independent operators, company men, and supply men in Kilgore, East Central Texas. Left to right: Al Ravenger, El Dorado, Ark.; M. Carl Jones, Shreveport, La.; S. Manning, Houston Oil Field Material Company, Inc., Houston, Tex.; Jake Hamon, Jr., Ardmore, Okla.; "Doggie" Grimm, and Tommie Thompson, Tidal Oil Company, Shreveport, La.; "Shorty" Fox, Arkansas Fuel Oil Company, Tyler, Tex.; and Ed Cox, Ardmore, Okla. 8—L. A. Finley and V. J. Parrott, Sinclair Oil & Gas Company, Fort Worth, Tex.

"For every joint on the line"



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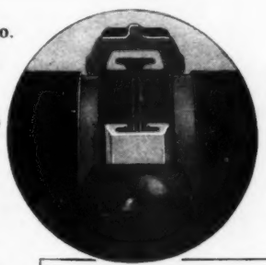

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Nineteen New Wells in Eastern Field

Eleven Were Gas Wells. New Work Started in Scattered Parts of the Big Area. New Purchasing Plan Effective April 1

By Staff Correspondent

PITTSBURGH, Pa., Mar. 14.—Notices will shortly be mailed to all producers and royalty owners of Pennsylvania grade crude run in the lines of the Southwest Pennsylvania Pipe Lines and the Eureka Pipe Line Co. that the South Penn Oil Co. proposes to centralize the buying of these credit balances in the Pittsburgh office of the Joseph Seep Purchasing Agency in the same manner as announced for the credit balances of Corning and Buckeye Pennsylvania grade crude in the Buckeye Pipe Line Co.

To effect this centralization, blank purchase orders will be mailed to all producers and royalty owners which, when signed, will authorize the Southwest Pennsylvania Pipe Lines and the Eureka Pipe Line Co. to transfer all oil as run from time to time to the credit of the South Penn Oil Co., subject to the usual pipe line regulations. This order may be cancelled at any time by either the producer or the purchaser by a written notice to the proper pipe line company.

The regular posted price, as announced by the Joseph Seep Purchasing Agency, will be paid and the date of the run will govern in case of a change in price. Settlement for oil so transferred will be made by the South Penn Oil Co. semi-monthly from the Pittsburgh office and will be made on or before the twenty-fifth of the month for oil run during the first half of the month and on or before the tenth day of the month for oil run during the latter half of the preceding month.

This order will be effective April 1, 1931, for oil run on or after that date only. Any credit balances in the pipe lines which may have accumulated prior to that date will not be affected nor, in case of delay in signing, prior to the date of the signing of the standing transfer order. Any such accumulated credit balances may be offered to the South Penn Oil Co. in the regular manner and will be purchased as rapidly as an outlet permits.

This will eventually bring about the closing of the purchasing offices of this company in Marietta, Parkersburg, Butler and Oil City. No announcement has yet been made with reference to credit balances in the National Transit Co. and the purchase of them by the South Penn Oil Co. but as many of the refineries along those pipe lines have already contracted with producers for crude, and as the South Penn Oil Co. is represented in Oil City by the Pennzoil Co., it is probable that no action will be necessary.

Both the Southwest Pennsylvania Pipe Lines and the Eureka Pipe Line Co. have announced that the change in the manner of buying crude oil by the South Penn Oil Co. will have no effect on their manner in reporting of credit balances to their patrons and that the companies will continue to gather and transport oil from the producers' tanks and credit them to producers' accounts as heretofore.

Field Work

Work in southeast Ohio has decreased materially with but three completions in that district during the past week. All three were fair wells. The total number of completions in the other two districts was only 16. Of these, 11 were gas wells. There were no large oil wells. There has been little to encourage operators to seek additional production.

In Muskingum County, southeast Ohio, the best well of the week was reported. There, the Atha Oil Co. completed a fair test in its well on the J. B. Corbin farm in the SW Section 3, Wayne Township. It was drilled into the Clinton sand at a depth of 3,911 feet and is showing for 2,200,000 feet a day. In Perry County, the same company completed its No. 17 on the Melick Brothers lease in the NE Section 20, Madison Township. It reached the Clinton sand at 3,170 feet and after a shot flowed 85 bbls. the first day along with an estimated 200,000 feet of gas.

In Vinton County, Powers and Henry drilled a second test on the Cameron S. Clark farm near Bollin Mills in Section 4, Knox Township. It is a gasser in the grit sand at 1,149 feet and is making about 1,500,000 feet a day.

Drilling in Ohio

In Guernsey County, the Kemrow Co. has a rig up for No. 3 on the J. W. Fowler farm in Section 10, Wheeling Township, and in Section 19, same township, James Sager and others have reached a depth of 1,000 feet in a second test on the James Sager farm. In Tuscarawas County, the Gordon Oil Co. and others have a rig standing for No. 4 on the Ralph Huffman farm, Lot 35, Washington Township. In Noble County, Frank Worral and others are down to 1,400 feet in a test on the J. B. Hutchinson farm, Section 12, Jackson Township, and in Enoch Township, Way Wickens and others have a rig standing for a second well on the J. M. Rowlands farm, Section 32.

In Washington County, the Swingle Oil Co. is down to 1,130 feet in a test on the Clarence McGrew farm, Section 1, Palmer Township. In Grandview Township, the First National Bank of Matamoras is drilling at 700 feet in No. 7 on the J. L. Amos farm, Section 2. In Independence Township, F. L. Johnson and others are drilling a test on the John Bliss farm and have reached 700 feet.

WEST VIRGINIA

Two oil wells were completed in West Virginia. Both of these were in McClellan district, Doddridge County. Claude Maxwell in a test on the Freeman Underwood farm drilled to a depth of 2,675 feet. The Big Injun sand was found between 1,930 and 2,055 feet with about 5,000 feet of gas at 1,935 feet. There was a show of oil between 2,010 and 2,014 feet. The Gordon sand was reached at 2,656 feet with an oil stratum between 2,658 and 2,661 feet. The well is estimated as a 5-bbl. pumper from both the Big Injun and Gordon sands. In the same section, J. H. Pentz completed No. 4 on the Mary and Zed Underwood farm at 2,740 feet. The log is similar to that of Maxwell's well with an intervening sand between the Big Injun and Gordon. The Big Injun was found between 1,758 and 1,885 feet with about a barrel a day of oil showing from 1,825-38 feet. About 45,000 feet of gas a day was found between 2,563 and 2,568 feet in the Stray sand 2,542-73 feet. The Gordon sand lies between 2,581 and 2,587 feet with a show of oil at 2,582 feet. The well can be pumped for about a barrel a day.

Gas Wells

In Boone County, Godfrey L. Cabot had two completions, both in Sherman district and on the Federal Coal Co.'s lease. The deep test made a showing of 20,000 feet of gas at 5,680 feet and is still drilling. This is No. 45. No. 32 was completed at 3,484 feet and is showing for a small gas well natural.

In Clay County, the Pure Oil Co. drilled its No. 4 on the A. J. Horan and others farm in Henry district keeper to 2,550 feet and have a small gasser. In Fayette County, Godfrey L. Cabot completed his test on the R. R. Huddleston farm in Falls district and it was a dry hole.

There were three completions in Gilmer County. On the waters of Little Cove Creek, Troy district, the Gilco Oil & Gas Co. completed a test on the P. R. Woofter farm in the Big Injun sand at a depth of 2,104 feet and it is a gas well showing for 500,000 feet a day. In DeKalb district, and on Holtz Run, L. C. Waggoner and others completed a test on the Alva Radabaugh farm in the Injun sand and it is showing for a light gas well. In the same district, the Hope Natural Gas Co. drilled its No. 6,033 on the W. G. Bennett farm deeper and in the Injun sand and it will make a small gas well.

In Kanawha County, the United Fuel Gas Co. completed its No. 4,277 on the Sunday Creek Coal Co. lease at 2,443 feet and have a fair well estimated at over 500,000 feet a day. This well is in Cabin Creek district. In Lincoln County, the Conley Gas Co. drilled No. 3 on the William Adkins farm to a depth of 2,404 feet with a light showing of gas and shut down for orders.

In Marshall County, G. B. Patterson has a gas well in his test on the Mary Chase heirs farm in Liberty district. It was drilled to a depth of 3,020 feet. In Monongalia County, the Pittsburgh & West Virginia Natural Gas Co. drilled its No. 5,295 and on the William Kinney heirs farm deeper to 3,503 feet and in the Bayard sand with an increased flow of gas. In Wetzel County, the Manufacturers Light & Heat Co. completed its No. 3,468 and a test on the Isaac Byard farm in the Injun sand at 1,987 feet and has a gas well.

Drilling in West Virginia

Among the new operations reported in the past week, the following are noted: In Grant district, Cabell County, the General Gas Co. has completed a rig for a test on the L. E. and W. I. Kinnard farm. In Chapmansville district, Logan County, W. G. McCorkle and others have started drilling No. 3 on the J. A. Covert farm and are at 225 feet. In Union district, Wayne County, C. C. Wolfe has the material on the ground for a test on the Sig. Adkins farm. In Carroll district, Lincoln County, the Allegheny Gas Corp. has made a location for a test on the Victoria Adkins farm.

In Lincoln County, the following operations are noted: In Union district, E. R. Cameron is down to 2,347 feet in a test on the Julia Breedlove farm. In Jefferson district, the United Fuel Gas Co. has reached 1,300 feet in their No. 4,312 on the J. Miller farm, and the Jefferson Gas Co. has part of the material on the ground for a No. 4 on the Richard Miller farm. In Carrol district, the Hamlin Natural Gas Co. is drilling at 2,100 feet in a second test on the James Holton farm, and the Martin Gas Co. has spudded in and started drilling a second test on the Elisha Bias heirs farm, in Sheridan district. In Carrol district, Louis R. Sweetland and others are rigging up for a second well on the T. J. Hoskinson farm. In Harts Creek district, Frank Yates has shut down at 1,810 feet a test on his own property.

In Mingo County, the Ohio Southern Gas Co. has a rig standing for a test on the Cowden and Workman farm in Harvey district. In Raleigh County, Godfrey L. Cabot has a rig completed for No. 3 on the Beaver Coal Co. tract in Trap Hill district, and is in the sand at 3,327 feet in No. 4 on the same tract but in Slab Fork district. This well has a showing of about 135,000 feet of gas a day.

In Boone County, the Pure Oil Co. has three wells drilling and a rig up for a fourth with a location for another. They are as follows, all in Sherman district: No. 50 on the Federal Coal Co., drilling at 2,889 feet; No. 51, same lease, drilling at 1,861 feet; No. 4 on the L. Sutphin at 2,148 feet; a location for No. 42 on the Lafollette, Robson and Prichard Tract A, and a rig standing for No. 256 on the Williams Coal Co. lease. The Owens Illinois Glass Co. continues active in Peytonia, Scott, Washington and Sherman districts of this county, and Godfrey L. Cabot is pushing further completions in Crook and Sherman districts.

In Wetzel County, Curtis and Smith are rigging up for a test on the Brent Midcap farm in Green district. In Church district, the Curry Oil & Gas Co. is hauling in the tools and rig material for a test on the C. W. Curry farm, and the Manufacturers Light & Heat Co. has started drilling their No. 3,478 and a test on the M. Bartrug farm and are at 360 feet. In the same district, the Carnegie Natural gas Co. is down to 1,190 feet in a well on the Whitlach heirs farm. In Proctor district, the Manufacturers Light & Heat Co. has a rig standing for the second well on the J. M. Newman farm. In Magnolia district, R. V. Hennen, trustee, has shut down at 3,150 feet in a test on the D. M. Alexander farm and is testing.

In Wirt County, R. C. Waggoner and others have a rig standing for a test on the William Living farm in Burning Springs district. In Reedy district, the Heck Oil Co. is down to 400 feet in No. 3 on the J. E. and J. G. Watkins farm. In Ten Mile district, Harrison County, J. W. Johnson and others have reached 2,300 feet in a test on the J. E. Morris farm. In Eagle district, the Delaware Gas Co. is down to 2,400 feet in a second well on the Reynolds heirs farm.

SOUTHWEST PENNSYLVANIA

Drilling in southwest Pennsylvania is chiefly confined to the gas areas with an occasional oil well. In South Beaver Township, Beaver County, J. L. Abrams completed a small oil producer in his No. 2 on the Caroline Young farm. It is rated at about 1 bbl. a day. In Middlesex Township, Butler County, the McNanny Oil Co. completed No. 1 on the Leland Wilson farm in the 100-foot sand. It is good for about 100,000 feet of gas a day.

In Washington County, the Carnegie Natural Gas Co. is down to 3,400 feet in a test on the Frank Moniger farm in Amwell Township and due in. In West Bethel Township, W. B. Redd & Co. have reached 2,400 feet in a test on the Thadius Crile farm. In Cross Creek Township, William Dillmeyer & Co. is drilling at 2,700 feet in a test on the George Dunbar farm. In Canton district, E. J. Young & Co. have reached 1,700 feet in No. 3 on the C. L. Taggart farm.

GAS ENGINEERING FIELD WORK

Tests of broad interest in several phases of fuel utilization marked the six months' field work of the course in fuel and gas engineering at the Massachusetts Institute of Technology now brought to a close. At the Tide Water Oil Co.'s refinery in Bayonne, N. J., gas and oil fired crude stills, solution stills and cracking coils were studied.

The efficiencies of a gas producer and a billet reheating furnace were determined at the Lackawanna plant of the Bethlehem Steel Co. and extensive tests were made on the dry quencher and Koppers liquid purification system at the gas plant of the Rochester Gas & Electric Corp. The 1,400-pound boilers and turbines at the Edgar station of the Edison Electric Illuminating Co. of Boston were also subjects for part of the test work.

The field work follows a year's study in theory of combustion, natural and manufactured fuels, power development, furnace design, utility economics, fluid flow, heat flow and kindred subjects in the graduate course at Massachusetts Institute of Technology.

GAS IN WASHINGTON STATE

YAKIMA, Wash., Mar. 14.—With a flow of 1,200,000 feet daily, the twelfth well of the Northwest Natural Gas Co.'s Benton County Field was brought in this week. Four other wells are drilling.

Bethlehem maintains at Houston, Texas, and Wilmington, Calif., well-assorted stocks of line pipe, ready for immediate shipment. Both threaded and coupled and plain-end pipe are included.

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In the building of a pipe line, as in any other construction project, the first and possibly the most important step is to insure the use of good materials.

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BETHLEHEM STEEL PIPE

Natural Gas Industry Developments

MEASUREMENT COURSE GROWS IN USEFULNESS

Combining interests of the oil and gas industries, the eighth annual Southwestern Gas Measurement Short Course to be held April 21, 22 and 23, at the University of Oklahoma, Norman, Okla., will offer instruction on practical modern methods of regulating and measuring both wet and dry gas. Men prominent in the gasoline industry will have a large share on the program. Ray G. Miller, secretary of the Natural Gasoline Association, is to address the opening session, and the industry will be further represented on general committees by R. D. Turner, Skelly Oil Co.; G. P. Bunn, Phillips Petroleum Co.; D. C. Williams, Continental Oil Co.; and L. G. Rheinberger, Sinclair Oil Co.

D. A. Sillers, of the Lone Star Gas Co., chairman of the general committee for the 1931 course, reports that from 60 at the first meter school to 450 at the seventh, attendance has steadily increased, indicating the growing importance of this phase of practical education for gas men and the interest shown by measurement men from all parts of the country. At last year's school representatives from 20 states and 2 foreign countries were present and the average attendance in classes was 95 per cent of men registered.

The school is conducted as a combination of a few general meetings with technical papers and discussions, and a large number of small classes on particular subjects led by men experienced in the industry, where the personal experiences of everyone in the group are compared. Other classes are held on individual pieces of equipment and are led by special factory service men furnished by equipment companies having exhibits at the school. The course is conducted by the university's school of engineering and is sponsored by the American Gas Association, the Natural Gasoline Association, the Oklahoma Utilities Association and the Oklahoma Corporation Commission.

Any person interested in measurement and regulation of gas may attend the course on payment of a registration fee of $3, which includes a ticket to the annual banquet. Arrangements can be made through the house committee for rooms in private residences in Norman so that expenses may be kept to a minimum.

C. B. Day, Consolidated Gas Utilities Co., Blackwell, Okla., is chairman of the general committee in charge of arrangements. W. H. Carson, professor of mechanical engineering at the Oklahoma University, is active director of the short course and chairman of the banquet and entertainment committee. Other committee chairmen are: B. L. Maulsby, Oklahoma Natural Gas Corp., Tulsa, program committee; W. R. McLaughlin, Arkansas Natural Gas Corp., Shreveport, La., committee for the study of practical methods; E. F. McKay, Oklahoma Utilities Association, registration committee; E. W. Rowland, the Empire Companies, Bartlesville, Okla., publications committee; and E. E. Stovall, Lone Star Gas Co., Dallas, Tex., exhibits committee.

Also serving on committees are R. H. Lussky, Oklahoma State Corporation Commission; R. D. Turner, Skelly Oil Co.; A. J. Kerr, Midwest Equitable Meters Co., Tulsa; G. P. Bunn, Phillips Petroleum Co., Bartlesville; D. C. Williams, Kay County Gas Co., Ponca City, Okla.; Eugene Metz, American Meter Co., Kansas City, Mo.; F. C. Walters, Panhandle Eastern Pipe Line Co., Kansas City; L. G. Rheinberger, Sinclair Oil & Gas Co., Tulsa; Ray G. Miller, secretary of the Natural Gasoline Association. Ex-officio members are E. A. Clark, Columbia Gas & Electric Co., Pittsburgh, Pa.; F. D. Franks, Cities Service Co., Bartlesville; and D. A. Sillers, Lone Star Gas Co., Dallas.

E. J. Stephany, secretary of the Natural Gas Department of the American Gas Association, will deliver an address at the opening session. Since the inception of the course eight years ago, the A.G.A. has given the school its active co-operation and endorsement.

R. J. S. Pigott, chairman of the Fluid Meters Committee, American Society of Mechanical Engineers, will also give an address. Mr. Pigott, who is in the research department of the Gulf company at Pittsburgh, Pa., headed a group of engineers from the A.S.M.E. on a visit to last year's course. E. F. McKay, chairman of the 1931 registration committee for the school, in commenting on last year's school said: "As a result of the attendance of the A.S.M.E. group, a close working relationship between the natural gas industry and the general subject of fluids metering has been established through the gas measurement course."

Seven cash prizes will be awarded for the best reports on "What I Learned at the Meter School" by officials of the short course. A first prize of $15, a second of $10 and five $5 prizes will be given. Officials of companies, heads of departments and technical experts will be ineligible, the prizes being designed to stimulate interest in the school among metermen.

Programs may be obtained by writing B. L. Maulsby, Oklahoma Natural Gas Corp., Tulsa, who is chairman of the program committee.

DENIES JURISDICTION

COLUMBUS, Ohio, Mar. 14.—The United Fuel Gas Co. of West Virginia has refused to file with the Ohio Public Utilities Commission an inventory and appraisal of the West Virginia property in response to a demand by counsel for the city of Columbus in a rate case of the Columbus Gas & Fuel Co. Both companies are subsidiaries of the Columbia Gas & Electric Corp., as also is the Ohio Fuel Gas Co.

Edward C. Turner, chief of counsel for the Ohio company, cited eight reasons why the United should not be ordered by the commission to submit the information sought by the city. These reasons, he said, are:

That the United was not engaged in supplying Columbus customers.

That the United was never dedicated to the Columbus territory's use.

That because of the United's location outside Ohio, the Ohio commission had no jurisdiction or power over its charges.

That because of the sales being made in West Virginia and the product being taken outside the State in interstate commerce, any interference by the commission would be unlawful and a usurpation of power.

That any attempt to regulate such prices would result in the retirement of the present contract between the two companies.

That the Columbus company has produced sufficient evidence to show its contract with the Ohio Fuel Gas Co., is fair and reasonable. That it has shown the contract between the United and the Ohio Fuel is also fair.

SPECIAL RATE GRANTED

CHATHAM, Ontario, Mar. 14.—The Medicine Hat, Alberta, city council has voted to enter into a contract to supply natural gas to Medalta Potteries, Ltd., of Medicine Hat at a fixed rate of 2 cents per 1,000 feet for a five-year period; with the privilege to the company of drilling any wells it may find necessary within a half-mile radius of its plant.

BETTER OIL-GAS RATIO SAVES KETTLEMAN GAS

LOS ANGELES, Calif., Mar. 14.—While the estimated gas production of the Kettleman Field is 385,500,000 feet daily at present, this figure shows a decline of more than 100,000,000 feet daily within the past few months.

The oil and gas ratio established in the Petroleum Securities' No. 2 Felix and the ratio established in the Superior Oil's No. 1 Huffman have been responsible for a large portion of the decline which is a conservation of the natural resource. Better oil and gas ratio has cut down waste of dry gas at Kettleman to approximately 135,000,000 feet a day.

The Pacific Gas & Electric Co.'s current gas load on lines distributing Kettleman Hills natural gas throughout northern California was estimated at 145,000,000 feet daily. F. F. Doyle, manager of the natural gas division, said San Francisco consumed approximately 45,000,000 feet daily, or almost one-third of the total.

Two pipe lines in times of peak loads carry about 7,000,000 feet of gas an hour from the Kettleman wells. One line belongs to the Pacific Gas & Electric, the other to the Standard-Pacific Gas Lines. Standard-Pacific is jointly owned by the Standard Oil Co. of California and the Pacific Gas & Electric Co.

Carrying the current peak load, the lines operate at about 65 per cent of capacity. The company has installed a compressor plant at Kettleman costing $1,000,000 to boost pressure on the gas to force it through the lines should the present pressure at the wells diminish. It now is sufficient to provide more than enough force to push the gas to the bay region, coming out of the wells at around 1,200-1,700 pounds well-casing pressure, whereas the line pressure is maintained at only 350-400 pounds.

Three wells—the Milham discovery, a Standard offset and the Associated-Whepley—furnish the gas.

MONTANA GAS PROJECT

CHATHAM, Ontario, Mar. 14.—A proposal to grant a natural gas franchise to the Public Service Gas Co. has been indorsed by the Great Falls, Mont., council and will be voted on by the taxpayers on March 9. The company plans to secure natural gas from an entirely new field and to apply for franchises in Fort Benton, Big Sandy and smaller cities along the route to Great Falls.

SOUTHERN CALIFORNIA GAS

The Southern California Gas Co., with headquarters at Los Angeles, enriched the State of California by $10,000 in paying a fee for extension of its corporate existence. The fee is based on a rate of $100 per $1,000,000 of capital stock. The State Railroad Commission extended the corporation's term of existence to February 15, 1981.

MEMPHIS GAS RE-ELECTS BOARD

The retiring board of directors of Memphis Natural Gas Co. was re-elected at the annual meeting. They are H. C. Abell, M. S. Binswanger, Henry D. Boenning, George W. Carman, B. L. Johnson, H. G. Scott and O. H. Simonds.

BIG GASSER IN ELK COUNTY

BRADFORD, Pa., Mar. 14.—Hanley & Bird, large producers of gas in Jefferson and Elk Counties, have a 10,000,000-foot gas well, which came in on Wednesday. It is said to be producing from the Cooper sand. The well is located near Johnsonburg, Elk County.

CALIFORNIA WASTAGE REDUCED 74 PER CENT

Wastage of natural gas in California was reduced by 74 per cent from February, 1930, to January, 1931, according to a statement issued by the State Railroad Commission, as follows:

During 1930 there was produced from the oil and gas fields of California a total of 228,099,899 bbls. of petroleum and 544,765,048,000 feet of natural gas.

Of this quantity of natural gas produced, a total of 141,384,977,000 feet was delivered to distributing utilities, a total of 182,387,786,000 feet was used for repressuring and storage, gasoline plant fuel and shrinkage, field fuel and drilling operations and refining fuel and the remaining 220,992,285,000 feet was blown to the air and wasted.

Over this period the 21 privately owned and municipal distributing utilities sold a total of 126,175,000,000 feet of gas to a total of 1,400,000 consumers throughout the State. During the year 1930, a great deal was accomplished in the cause of conservation of natural gas. This is shown by the fact that the total monthly wastage was reduced from 26,588,309,000 feet in February, 1930, to 6,907,985,000 feet in January, 1931, a reduction of 74 per cent.

The factors that accomplished this great reduction in wastage were the effect of the state gas conservation law known as the Lyons Act, the voluntary curtailment of production by the oil industry, the curtailment agreement between the operators of the Kettleman Hills Field and the Federal Government, the tremendous expansion of natural gas service by the public utilities of the State and the natural decline in production in the southern fields.

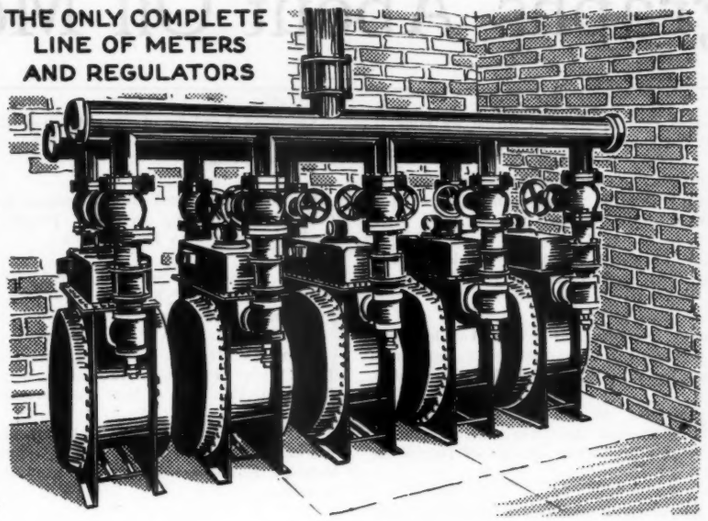
The most important source of natural gas and petroleum in the State at the present time, and probably for some time to come, is the Kettleman Hills oil field, in Fresno and Kings Counties. This field is now producing from eight wells a total of 426,390,000 feet of natural gas per day, of which 201,423,000 feet per day is being taken north to San Francisco and south to Los Angeles by the distributing utilities, 69,824,000 feet per day is used for storage, plant fuel, refining fuel, field operations, etc., and 155,143,000 feet per day is being blown to the air and wasted. All of the gas produced in this field is passed through gasoline extraction plants from which are being produced a total of 2,087,250 gallons of natural gasoline per day.

During the next two years the construction of two new gas lines from this field are contemplated. One of these, a 12-inch line to Herndon, will supply some 12,500,000 feet of gas for the operation of a 50,000 kilowatt electric steam plant at Herndon, near Fresno, and the second, a 26-inch line, will supply 130,000,000 feet of gas per day to the Los Angeles Basin and the Long Beach steam plant of the Southern California Edison Co. at Long Beach, Calif.

The outlook for further accomplishment along the lines of conservation are bright and it is very probable that the next few years will see substantial improvement in conditions relating to the conservation and economical utilization of our natural gas resources.

RICH HILL, MO., TESTS

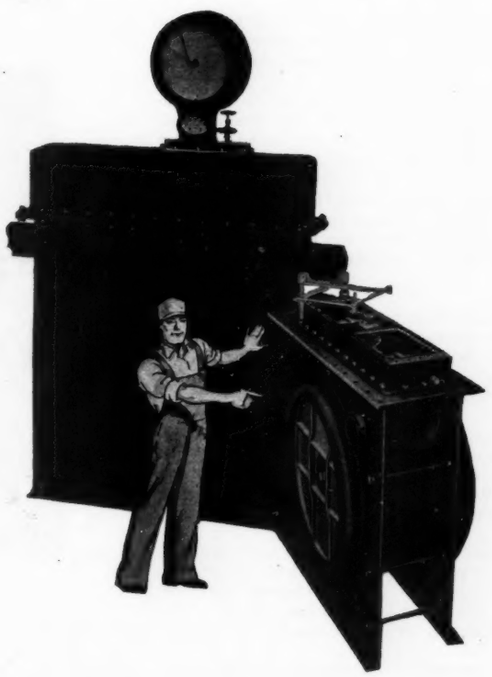
The Consumers' Oil & Gas Co. has been organized in Rich Hill, Mo., to develop gas wells in the vicinity of Sprague, 4 miles west. Twenty years ago a pipe line ran from the field into Rich Hill The flow diminished and the line was taken up.



FOR INDUSTRIAL INSTALLATIONS -EMCO 5's

Requiring slightly over four square feet of floor space and just over three feet in height, the compactness of this meter is greatly appreciated for manifold installations. The entire assembly weighs approximately 900 pounds.

The pressed steel case construction; Rolling type diaphragms, mounted on terne iron pans reinforced to maintain absolute rigidity; Diaphragm drains; Patented tangent adjustment; Flag rod and movement so mounted to eliminate friction; Exclusive valve arrangement; Interchangeability of all parts; Moving parts cadmium plated; these features combine to produce a meter that will measure accurately 10,000 cu. ft. of gas per hour with a pressure drop of less than two inches of water.



EMCO PRINCIPLES

Rolling Type Diaphragm - All Parts Interchangeable
Steel Case - Rugged Beyond Compare
Easily Repaired - In The Line

EMCO METERS AND REGULATORS

PITTSBURGH EQUITABLE METER COMPANY

Main Office and Works—Pittsburgh, Pa.

New York City Tulsa, Okla. Columbia, S. C. Seattle, Wash.
Chicago, Ill. Dallas, Texas Salt Lake City Houston, Texas
Los Angeles, Calif. Davenport, Iowa Kansas City, Mo.

Personal Paragraphs About Oil Men

Dwight Wallace, of Casper, Wyo., has been visiting Tulsa.

* * *

John H. Wiggins, petroleum engineer, Tulsa, is on a trip to the Gulf Coast of Texas this week.

* * *

R. G. Stewart, president, Pan American Petroleum & Transport Company, is visiting Europe.

* * *

Raymond Parker, vice president of the Richfield Oil Company of New York, has been visiting Florida on business.

* * *

Bart A. Myers, resident manager for the Tropical Oil Company in Colombia, is returning to the United States on a vacation trip.

* * *

Herschell Cooper, consulting geologist, was elected president of the San Antonio Geological Club, succeeding D. R. Semmes, retired.

* * *

Angus Sutherland, who has been drilling in the Turner Valley Field for some years, is visiting at Petrolia and Oil Springs, Ontario.

* * *

J. D. Creveling, of Henry L. Doherty & Company, and Mrs. Creveling are on a world tour. They expect to return about May 1.

* * *

Joseph Leiner, geologist, with headquarters at Brownwood, Tex., is visiting New York in connection with the development of eastern gas properties.

* * *

J. K. Firth, Jr., who was formerly head of the fuel oil and asphalt division of the Standard Oil Company of California, has been appointed manager of sales for all Pacific Public Service properties.

* * *

Byron Russell, of Shreveport, La., with the Louisiana Oil & Refining Company, has been made assistant sales superintendent. Mr. Russell has served as post commander of the American Legion at the local post.

* * *

F. F. Hill has been made director in charge of production for the Union Oil Company of California, R. E. Haylett is director of manufacturing, V. H. Kelly director of sales, and William Groundwater is director of transportation.

* * *

John Bartley, Jr., of Bradford, Pa., was called to Butler, Pa., recently owing to the death of his uncle, Robert Bartley, a veteran oil man. Robert Bartley is credited with having drilled the first gas well in Washington County in 1884.

* * *

J. J. Flanagan and family, formerly of Wyoming, are now residing at Pasadena, Calif., where Mr. Flanagan is engaged in the oil business. He was formerly superintendent of operations for the Continental Oil Company in the Casper, Wyo., district.

* * *

J. U. Stair, manager of production for the Shell Oil Company of California during the past nine years, has been elected vice president of that company, succeeding William Reinhardt, who has been appointed general manager of the Kettleman North Dome Association.

* * *

Howard E. Cole, former first vice president of the Standard Oil Company of New Jersey, has been elected a member of the board of directors of the United States Lines, Inc. Robert L. Hague, vice president and general manager of the Standard Shipping Company, marine subsidiary of the Standard Oil Company (New Jersey), was also added to the board of the United States Lines.

* * *

Charles P. Dimit, formerly general superintendent of production for the Gypsy Oil Company and Independent Oil & Gas Company, of Tulsa, has been appointed to a similar position with the Phillips Petroleum Company at Bartlesville, Okla. Mr. Dimit has assumed his new duties. No other changes in the production department of the Phillips Petroleum Company have been announced to date.

Sam Kornfeld has opened an office as consulting geologist and engineer, at Tyler, Tex.

* * *

Arthur Simpson, of Tulsa, connected with the Noble Drilling Company, is spending a few days in Casper, Wyo.

* * *

C. J. Patton, traffic manager of Sinclair Oil & Gas Company, has been making a tour of inspection through the East Texas fields.

* * *

W. E. Ramsey has returned to Los Angeles from Sacramento, following a business trip in connection with impending legislation affecting the oil industry.

* * *

John P. Vezetti, of the Sunset Pacific Oil Company, recently addressed the California Petroleum Accountants Society on "Some Phases of Petroleum Accounting."

* * *

Phillip C. Maverick, consulting geologist of San Angelo, Tex., and Mrs. Maverick are visiting the former's brother, George M. Maverick who is director of research for the Standard Development Company, a subsidiary of the Standard Oil Company.

Men of the Industry

A. Clarke Bedford

A. Clarke Bedford, recently elected president of the Beacon Oil Company, is a son of the late A. C. Bedford, former chairman of the board of the Standard Oil Company (N. J.), and has had experience in virtually all important phases of the oil business since he entered it in 1913. Following his graduation from Williams College in that year, Mr. Bedford went to work in the Long Island City plant of the Standard Oil Company of New York. Then came three months in the Eagle works of the New Jersey company, and a period in the accounting department followed, after which he was transferred to Oklahoma.

After three years with the Carter Oil Company in Oklahoma, Mr. Bedford entered the quartermaster corps of the army. Discharged after the war with the rank of captain, he entered the New York office of the Carter company and became assistant to J. A. Moffett. Later he was made a member of the marketing committee. In 1926 he was appointed one of the joint managers of the Standard Oil Company (N. J.) domestic sales department. The next year he was made vice president of the Standard Oil Company of Louisiana, which office he was holding at the time of his election to the presidency of the Beacon company.

Clarence Verdon, of the Midwest Refining Company, has returned to Casper, Wyo., after a visit to Denver, Colo.

* * *

G. C. Phillips and Bob Brennan, scouts for the California Company in West Texas, were recent business visitors to Dallas, Tex.

* * *

E. G. Woodruff, consulting geologist, has opened headquarters at Tyler, Tex., to take care of his work in the new East Texas pools.

* * *

George J. Hanks, general superintendent of the Tide Water Pipe Company with headquarters in Bradford, Pa., was a New York visitor last week.

* * *

L. C. Quackenbush, general salesmanager, Tide Water Oil Corporation, is on a business trip through England and France studying petroleum markets.

* * *

A. T. Jergins, president of the Independent Petroleum Association of California and prominent independent operator, recently returned from a trip to Mexico City.

* * *

Carbon Petroleum Dubbs is in politics. He has been nominated as a candidate for president of the village board at Wilmette, Ill. He heads the "public welfare party" ticket.

* * *

Austin E. Williford, of the former Marland Oil Company, Ponca City, Okla., has been assigned by the Continental Oil Company to its division sales staff at Council Bluffs, Iowa. He began his duties March 15.

* * *

K. D. Pardee, of Billings, Mont., superintendent of the northern division of the Rocky Mountain region for the Texas Production Company, has been looking after the company's drilling operation in the Alkali Butte district in Fremont County, Wyoming.

* * *

Robert W. Hendee, vice president, Natural Gas Engineering Company, Tulsa, is in West Texas supervising operations on the new pipe lines being laid from the Big Lake Field to San Angelo and Girvin, Tex., to carry gas to the plants of the West Texas Utilities Company.

* * *

Joseph C. Jorden, who has been district manager for Northwest States Utilities Company, with Great Falls, Mont., headquarters, has resigned effective June 1. He will return to the employ of the Hope Engineering Company of Mount Vernon, Ohio, with which he was previously associated.

* * *

D. S. McManus, for the past six years superintendent of gas, water and buses of the Gulf States Utilities Company and the Louisiana Electric Company at Lake Charles, La., has been appointed division manager of the Southwest Louisiana Division of the United Gas Distribution Company, a unit of the United Gas system.

* * *

Harry O. Kapp, of Rawlins, Wyo., manager of the Rocky Mountain Gas Company at Rawlins and the Aspen Gas Company with distributing systems at Green River and Evanston, Wyo., was in Casper, Wyo., recently, having driven from Salt Lake City, Utah, with Frank B. Firmin of Findlay, Ohio, treasurer of natural gas companies affiliated with the Ohio Oil Company.

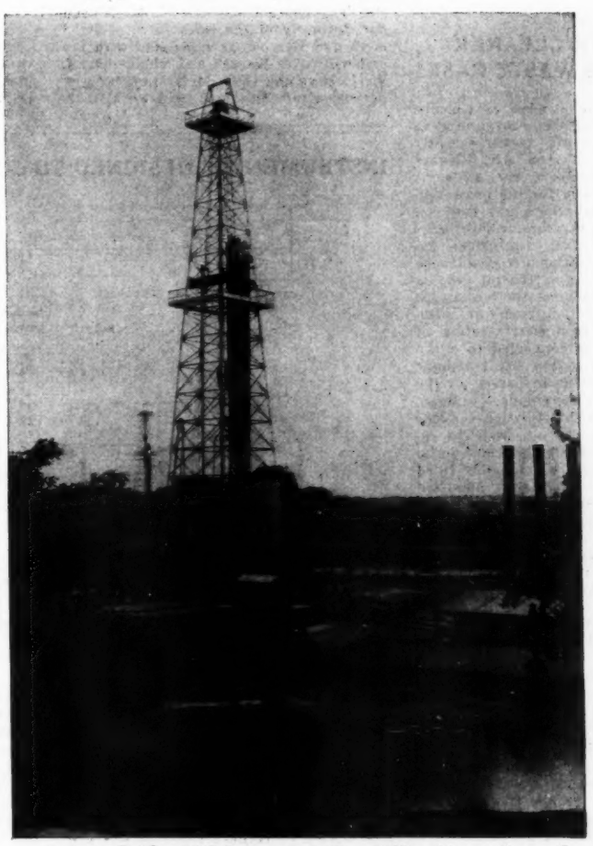
* * *

Harry Meredith, in the land department of the Atlantic Oil Producing Company at San Angelo, Tex., has been transferred to the Dallas offices of the company and John Marston, formerly assistant to J. N. Mendenhall, head of that department of the company at Dallas, has been transferred to San Angelo. Edgar Kraus, district geologist for the company, has been transferred from the San Angelo office to Roswell, N. Mex. N. B. Winter will be in charge of the company's geological department in San Angelo for the time being.

..Down Down Down...

. . to the productive sands

The strength of Youngstown tubular goods makes it the soundest protection to drilling investments.



Anderson-Prickard Oil Corporation's Mary Gibbons No. 3 well, one of the thousands of wells in which Youngstown tubular goods are used.

THE YOUNGSTOWN SHEET AND TUBE COMPANY

One of the oldest manufacturers of copper-steel, under the well-known and established trade name "Copperoid"

General Offices:—YOUNGSTOWN, OHIO

District Sales Offices:

CONTINENTAL SUPPLY COMPANY
1501 Locust Street, St. Louis, Mo.

INTERNATIONAL SUPPLY COMPANY
Tulsa, Okla.

YOUNGSTOWN STEEL PRODUCTS COMPANY
3000 Santa Fe Avenue, Los Angeles, Cal.

REPUBLIC SUPPLY CO.
2122 East 7th Street Los Angeles, Cal.

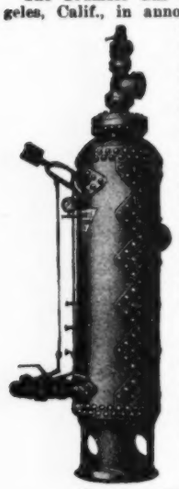
GALVANIZED SHEETS PROTECT
SAVE WITH STEEL

YOUNGSTOWN

Oil Industry Equipment and Supplies

SEPARATOR SPREADS OIL ON WALLS IN THIN FILM

The Trumble Gas Trap Co., Los Angeles, Calif., in announcing the Kettleman type separator says it is the outgrowth of continued research and experimental work both in the Trumble factory and in the field. It amplifies the Trumble principle of spreading the oil on the walls of the separator in a thin film, by the addition of a greater surface on which the gas can impinge.



Field tests are said to have demonstrated that the gas capacity of the separator has been increased more than 40 per cent in the new Kettleman type.

IMPERIAL AIR CLEANER UTILIZES WASTE GASES

Utilization of exhaust gases as a means of operation is a feature incorporated in the United Imperial air cleaner recently developed by the United Air Cleaner Corp., 9705 Cottage Grove Ave., Chicago, and designed especially for the protection of internal combustion engines used on tractors, trucks, excavators, compressors and other engine-driven equipment exposed to severe dust and dirt conditions.

The new cleaner is of the oil type, a removable compartment at the bottom being provided for the oil reservoir. Immersed in the oil is a short section of slotted pipe which is connected to a tap on the manifold so that a small amount of the exhaust gases is by-passed to the cleaner. As soon as the engine is started, the heated gases emitted through the slot cause turbulence in the oil, with the result that the washing chamber immediately above the reservoir is completely filled with an oil spray. Outside air admitted to this chamber must pass through the spray and be deflected by a series of specially shaped baffles, the combined action of the oil spray and the baffles resulting in washing the air and removing dust particles. The oil-laden air then passes through a filter compartment packed with fine crimped wire, which removes the oil and completes the cleaning process.

Between the washing chamber and the outer shell of the cleaner are passages which are out of the path of the air passing through the cleaner, and which permit a continuous circulation of oil.

Regardless of outside temperatures and engine operating speeds, the heated exhaust gases quickly reduce the viscosity of the oil and bring it to the necessary temperature for cleansing purposes.

KEROTEST CATALOG READY

The new catalog published by the Kerotest Manufacturing Co., Pittsburgh, Pa., offers 104 pages of information regarding Kerotest cast-steel valves and fittings for every service. The contents of the book, which is profusely illustrated, are presented under seven heads: Valves, Fittings for Christmas Trees, Fittings for Hot Oil and Steam, Steel Castings, Miscellaneous, Inspection and Test, and Dimensions. The pictures show actual installations throughout various parts of the world.

AMONG THE EQUIPMENT HOUSES

The Burford Oil Co. has moved from Minneapolis, Minn., to Room 1155, 221 North La Salle Street, Chicago. George B. Davies is manager.

The Duriron Co., Inc., Dayton, Ohio, has established a branch office in the Leader Building, Cleveland, Ohio, in charge of E. D. Brauns.

John A. Worthington, assistant to the president, American Hammered Piston Ring Co., Baltimore, Md., is making a business trip through the Southwest.

Appointment of D. C. Prince as engineer of the switch-gear department of the General Electric Co. in Philadelphia, is announced by Neil Currie, Jr., manager of the plant. The appointment includes supervision of switchgear research activities in Schenectady, N. Y.

J. E. Sloan, formerly of the Union Wire Rope Co., is now district manager in Tulsa for the E. H. Edwards Wire Rope Co. He has opened an office at 506 Thompson Building. T. E. Alexander, formerly of the sales force of Broderick and Bascom, is associated with him and will cover Kansas and Oklahoma. L. P. Gorsline and C. T. McKinney, both experienced rope salesmen, will work in the East Texas territory with headquarters in Tyler.

J. A. Gosnell, purchasing agent of the Tulsa Boiler & Machinery Co. for the last two years, has been transferred to the sales department. He has been succeeded as purchasing agent by Ted Hodges.

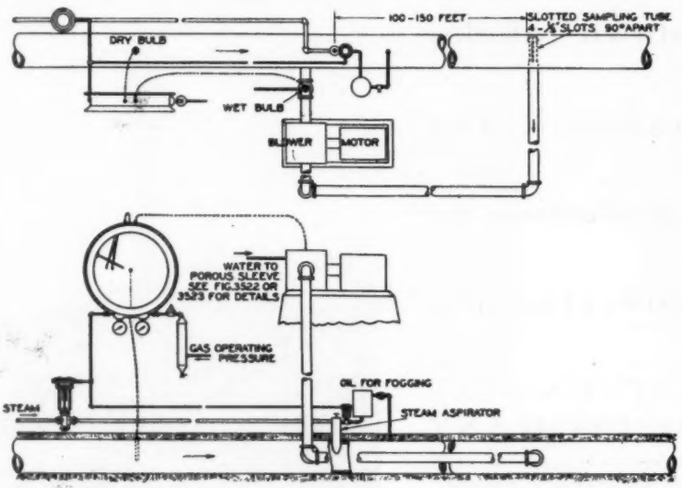
Bell & Eiss, Inc., 430 Oak Grove Avenue, Minneapolis, Minn., are representing the Edward Valve & Manufacturing Co., makers of valves for high pressures and high temperatures, in the territory tributary to the Twin Cities.

The Gasoline Products Co., Inc., announces the removal of its offices from the foot of Danforth Avenue, Jersey City, N. J., to 11 Commerce Street, Newark, N. J.

C. F. Dougherty, Tulsa representative of the Larkin Packer Co., has moved the Tulsa office to 836 South Jamestown Avenue.

The American Iron & Machine Works Co is establishing a shop in Kilgore, Tex., to serve the East Texas oil field. The machine shop maintained by the company at Maud, Okla., will be discontinued.

INSTRUMENT IS DESIGNED TO CONTROL GAS SATURATION



The Foxboro Co. of Foxboro, Mass., announces an instrument for the control of gas saturation or rehydration. This instrument, the Foxboro saturation controller, is designed to solve the problem of correctly saturating natural gas to prevent the drying out and subsequent leakage in any line formerly used for the distribution of manufactured or wet gas.

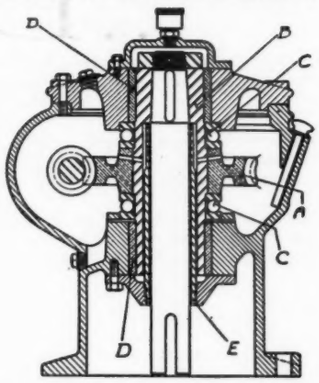
The operating principle is unique. Basically it is a wet and dry bulb psychrometer. Control of the saturation point is maintained by the wet bulb thermal system which operates a controlled valve in the steam line leading to the aspirator. A hook-up is possible whereby oil fogging can be accomplished through the same steam aspirator. A sample of the saturated gas is drawn from the line by a motor blower which circulates it over the wet bulb, thus insuring the correct velocity for evaporation. The dry bulb thermal system operates a power diaphragm inside the instrument which resets the saturation point to conform with changes in temperature in the line. This means that changes in the gas line temperature will constantly reset the saturation point so that the gas will always be saturated at the gas line temperature. This is an important point for if the gas is not practically saturated it will eventually dry out the line and cause excessive leakage, and if it is saturated at a temperature higher than the line temperature it will cause condensation troubles.

The saturation controller is of the air-operated type. On this particular service, however, air is unnecessary since the controller can be operated directly from the gas pressure in the line if that pressure is 2 pounds or over.

The instrument is said to be rugged, fool-proof, simple to install, simple to operate and simple to maintain. The Foxboro Co. has prepared a bulletin entitled "Gas Saturation Control" which describes this instrument in detail. A copy may be obtained by writing the company.

VERTICAL REDUCER NOW OFFERED AS LEAKPROOF

Foote Brothers Gear & Machine Co. announces a new vertical leakproof hy-



grade worm-gear reducer line, incorporating a radical departure from established methods of controlling oil leakage. The company states that exhaustive tests have demonstrated thoroughly its positive leakproof qualities.

There are no parts to wear out or require adjustment or replacement during the life of the unit. It is a built-in part of the reducer and when once assembled into a unit, it may be forgotten as far as maintenance is concerned, according to the manufacturer.

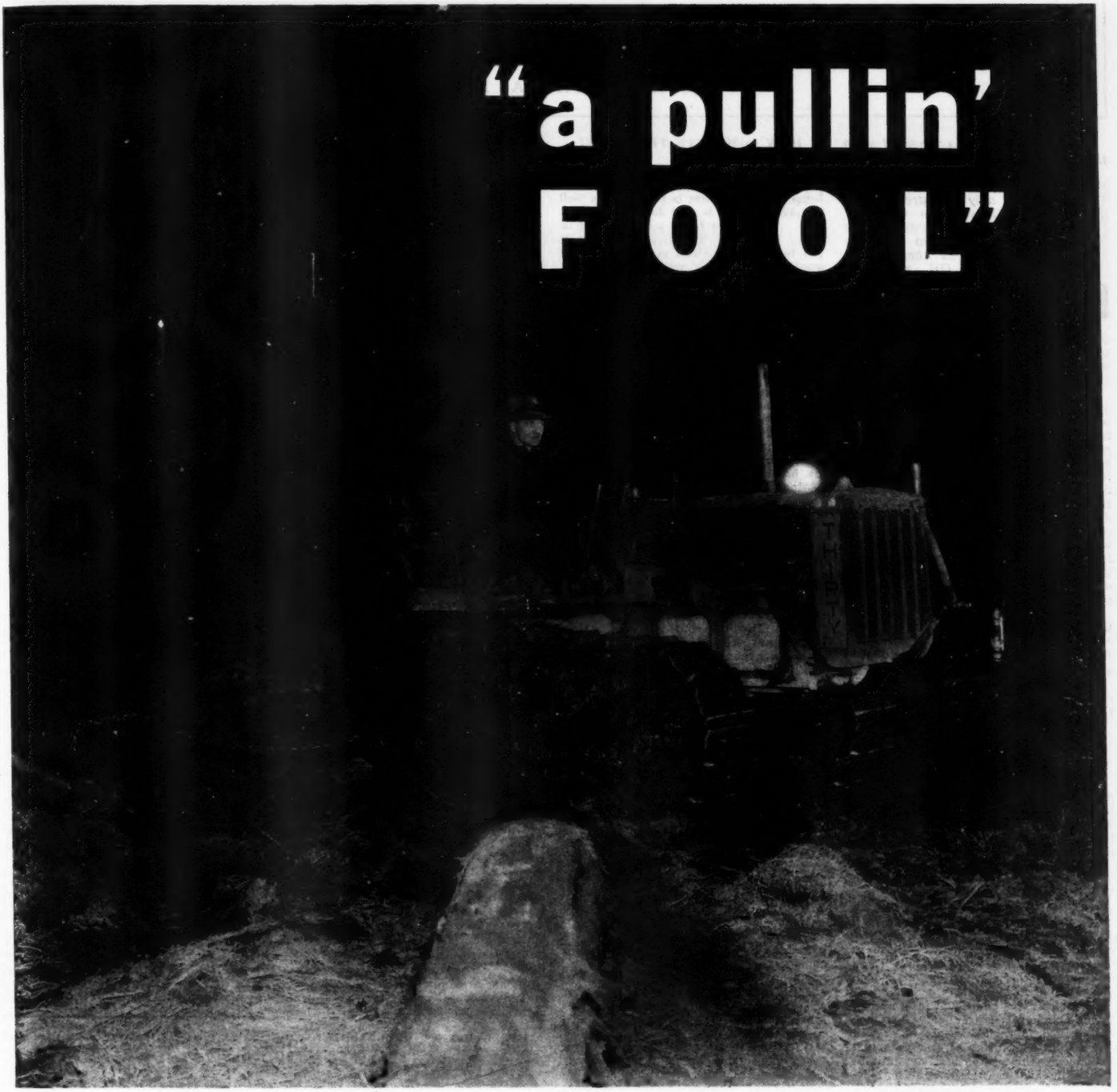
The cross-section cut herewith shows the means employed to make the vertical reducer oil leakproof. The bronze worm-gear ring (A) is pressed on a splined hollow steel center (B) and is held rigid on this center by two flat ball thrust bearings (C). This complete arrangement is mounted on bronze bearings (D) and the hollow center is securely fastened to the vertical shaft at the uppermost part of the reducer, thus forming a cavity below this point for nearly four-fifths of the entire length of the shaft. In this space is placed a tube (E) which is sealed and fastened to the lower part of the reducer from where it extends upward to a point well above the oil level. At the top the opening of the tube is covered by the steel center (B). This positively prevents any oil from leaking out and forms two chambers, one in which the worm gear operates and the other in which the vertical shaft rotates free from the contact of oil at all points.

Complete information is available by writing to Foote Brothers Gear & Machine Co., 111 North Canal Street, Chicago.

SIX-WHEEL UNIT SOLVES TROUBLES ON HIGHWAY

Difficulties which the truck driver often encounters in getting to his destination with the load with which he started out, caused by road officials objecting to the heavy weight on one axle and one set of wheels, are said to have been overcome by the Utility six-wheel attachment offered by the Leland Equipment Co., Tulsa. The company has installed this six-wheel unit, with its extra axle and its greater wheel and tire capacity, on heavy trucks, and marked benefit is said to have been reported.

Direct results of installing a six-wheel unit on a truck are said by the company to include complete compliance with the highway regulations, increased pay load, lower per mile cost, fewer trucks and drivers required, smaller investment in ratio to tonnage capacity, and a decided saving to the highway. The company has prepared a circular devoted to the Utility attachment.



MANY a "Caterpillar" driver has a warm spot in his heart for the sturdy tractor that so willingly obeys him—"a pullin' fool" is a real tribute to the motor's extra power and tracks that fear no sand or mud. Up in the British Columbia oil fields, this Thirty is working double shifts — tireless, eager and responsive. You'll find whole fleets of "Caterpillars" on the operations of great companies—and many times one machine has played a useful part in bringing one wildcat well to production.

Prices—f. o. b. Peoria, Illinois

TEN	$1100	TWENTY	$1900
FIFTEEN	$1450	THIRTY	$2375
SIXTY	$4175		

Caterpillar Tractor Co.

PEORIA, ILLINOIS, U. S. A.

Track-type Tractors Combines Road Machinery

(There's a "Caterpillar" Dealer Near You)

CATERPILLAR
REG. U. S. PAT. OFF.
TRACTOR

Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

AREA DRAINED BY GAS WELL

I am interested in knowing how far a gas well will drain gas from adjoining lands. I am particularly interested in the Stevens-Morton County, Kansas, Field. Could you advise me where I might find this information?—D. W.

In the September 11, 1930, issue of The Oil and Gas Journal you will find an article by E. G. Woodruff, geologist, on the Hugoton Field which gives a good deal about the geology of this area together with many other facts. Also in the October 2, 1930, issue of The Oil and Gas Journal there is another article on the same area by Dorsey Hager, geologist, which gives additional information. In his article Mr. Hager states that one well drilled to each 160-acre block will give complete drainage of that area and recommends this as the best size unit to develop in this field. He does state, however, that "where lease conditions justify it a large unit might be used."

It is believed that you will find much of interest in the two articles mentioned and you are referred to either Mr. Woodruff, 340 Philcade Building, Tulsa, or Dorsey Hager, Wichita Club, Wichita, Kans., for more detailed information.

FOR STUDENT OF LUBRICATION

Would you please refer me to some method of obtaining a home course in lubrication engineering?—R. H. R.

It is probable that a correspondence school offering engineering courses can give you what you seek, and it is suggested that you write to a reputable school of this kind for literature. There are books on this subject that should go a long way in meeting your needs. These include "The Practice of Lubrication," Thomsen; "Industrial Oil Engineering," Battle; "Lubrication and Lubricants," Archbutt and Deeley; "Friction and Lost Work," Thurston.

HOW COMPLETE THE HOLE?

I started to drill a test well in the southern part of Pittsburg County, Oklahoma. My intention is to drill this well to 1,425 feet. It is shut down at 540 feet now. At 320 feet I had a big showing of heavy black oil. The second sand is at 718 feet and the third at 1,425 feet. I would like to know what size casing I should use. I started the hole with 12½-inch. Will you please let me know what would be the best way to drill this well the rest of the way, by the day or by the foot? What are the daily wages of drillers and tool dressers and what would a drilling contractor charge me per foot?—L. M.

It is not clear from your letter what the present size of the hole is. You say you started with a 12½-inch hole and in this you would set your string of 10½-inch casing, and then continue reducing the hole as necessary to 8¼, 6⅝ and 5⅝-inch sizes.

Without knowing something of the detailed geology of that area it is impossible to say definitely how many strings of casing you would have to use in completing this well, but if you do not have any water or gas sands between the sand at 718 feet and the one 1,425 feet you should be able to finish the well with regular reduction in sizes of casing strings. Drilling contractors probably would want from $1.75 to $2 per foot for drilling, you to furnish fuel and water. If you were to employ a driller and a tool dresser yourself you probably would have to pay the driller $10 a day and the tool dresser about $6, besides providing equipment.

However, one wonders why you should want to drill a well when the geology of the area is so unfavorable to the finding of oil or gas in commercial quantities, and if found you would have difficulty in getting pipe line connections to the well under the present conditions in the industry. The Oklahoma Geological Survey's Bulletin 40, states about this area: "Exploration on the large anticline in Coal and Pittsburg Counties has been disappointing from a standpoint of oil production. Gas has been found at various points although the wells in general have been small and the producing area spotted. The apparent absence of oil in commercial quantities in the Pennsylvanian beds throughout this area has been generally explained on the basis of the carbon ratio theory. It has been suggested particularly by Tarr, that the finding of gas only may be in part due to the fact that the Pennsylvanian beds are largely nonmarine or at least shallow water deposits. The lower horizons, of more typical marine origin, have not been tested in this area, mainly on account of the depth at which they occur, consequently their productive possibilities are unknown."

Would it not be wise for you to consult a good geologist and have him pass upon the possibilities of finding oil in commercial quantities in that section of Pittsburg County? So far as this department has been able to ascertain all the drilling so far done has been to the north and northwest of the spot you have selected for a test.

If you definitely decide to finish the well you are advised to turn the contract over to a reliable contractor and have the cost set forth clearly, as well as the amount of casing to be used and other details that will have vital bearing on the total cost of the hole.

There are good geologists in your city capable of giving you good advice on this matter and it is suggested that you get in touch with one of them, and follow his advice in this matter for while he will charge you a consulting fee it may mean the saving of money to you in the long run.

WHERE THERE IS EXCESS GAS

Is it possible to diminish or adjust the gas-oil ratio by any means in cases where the gas from a well greatly exceeds the volume needed to produce the greatest possible quantity of oil? Does this condition arise from improper tubing?—R. H. O.

For the answer to your question and the tables which accompany the answer this department is indebted to S. F. Shaw, consulting engineer, who says that in wells where there is a large excess of gas over that required to lift the maximum quantity of oil, gas-oil ratios have been regulated or reduced, in some cases by the use of beans. It has appeared, however, that such instances usually accompany the use of tubing that is not the best size for the best rate of production. An instance may be cited in a well 3,256 feet deep with 6⅝-inch casing and 3,246 feet of 3-inch tubing, from which the data of Table 1 were obtained.

It will be noted that the flow through the annular space between the 6⅝-inch and the 3-inch tubings resulted in higher gas-oil ratios for a production of 174 bbls. per day with trap pressure of 200 pounds than the flow through the 3-inch tubing. However, when the trap pressure was lowered to 50 pounds, the production increased to 443 bbls. per day and the gas-oil ratio was reduced to a figure much below the best rate possible to obtain when flowing through the 3-inch tubing.

Instances similar to the example noted in Table 1 may be given of wells flowing naturally that were afterward changed to gas-lift operation. The results in regard to gas-oil ratios are given in Table 2.

Instances may be cited, as in Table 3, which indicate that gas-oil ratios were not materially affected by reducing the back-pressure in wells flowing naturally.

The increases or reductions in the gas-oil ratios shown in Table 3 are too small to admit the conclusion that there was any actual change in gas-oil ratios when the possibilities of error in reading orifice meters and the tendencies for gas to escape without being measured are considered.

When due precautions are observed as to the use of the best size of tubing, and corrections are made to obtain the actual gas-oil ratios under equivalent standard conditions, it may be found that, even in wells with large excess of gas, the use of back-pressures at the casinghead may not produce the lowest gas-oil ratios. If, then, it should be found that lower gas-oil ratios are not obtained by holding back-pressures either in gas-lift wells or in wells flowing naturally, the theory as to the use of higher back-pressures to obtain lower viscosity fails, so far as being a critical factor in ultimate recovery.

WHY WAS IT CALLED THAT?

AEOLIAN ROCKS

The geologist showed that he was not without a bit of sentiment when he applied the word "aeolian" to sedimentary rocks or sands whose material was deposited by winds in ages past, for the name comes from Aeolus, mythical god of the winds, and means pertaining to or produced by the wind. Some of the biggest wells, including most of the Baku gushers, were found in these aeolian sands.

PIPE LINE CORROSION

I would like to have a list of books or papers dealing with the predetermination of pipe line corrosion.—C. A. M.

The following papers presented at the annual meeting of the American Petroleum Institute in Chicago in November, 1930, are recommended: "Report of the Work of the Bureau of Standards Underground Corrosion Section During 1930," by K. H. Logan; "Pipe Protection—Why and How," Underground Pipe Protection Institute; "Soil Corrosion," Joseph F. Putnam, and "Corrosion of Production Equipment."

These are only a few of the many reports that have been made by members of the corrosion committee of the A. P. I. and if you will address the Institute at 1508 Kirby Building, Dallas, Tex., it is possible that you may be able to get additional information covering the results of their investigations.

You might also write direct to Dr. K. H. Logan, Bureau of Standards, Washington, D. C., asking him to advise you what papers or articles he may have available for distribution on this subject.

TABLE 1—EFFECT ON GAS-OIL RATIOS CAUSED BY INCREASING PRODUCTION

Flow tubing size, inches—	Pressure, pounds— Casing	Trap	Oil, bbls. per day	Gas— Per minute, cu. ft.	Gas-oil ratio
3	265	132	227	1,890	11,980
3	246	99	235	1,980	12,130
3	223	46	242	2,078	12,350
Between 6⅝ and 3	(*)	200	174	1,600	13,250
	(*)	144	211	1,829	12,470
	(*)	93	228	2,040	12,870
	(*)	50	443	2,272	7,375

*No pressures were obtained on the tubing when flowing between the tubing and casing.

TABLE 2—GAS-OIL RATIOS IN WELLS FLOWING NATURALLY AND ON GAS-LIFT

Well—	Method of flowing	Depth of tubing or casing (ft.)	Oil, bbls. per day	Gas per minute, cu. ft Input	Output	Sand	Gas per barrel, cu. ft. Input	Output	Gas-oil ratio
A	Natural	4,340	975	...	911	911	...	1,345	1,345
A	Gas-lift	4,340	1,295	341	1,284	943	378	1,429	1,051
B	Natural	4,347	511	...	420	420	...	1,440	1,440
B	Gas-lift	4,347	1,479	978	1,882	904	952	1,832	880

TABLE 3—EFFECT ON GAS-OIL RATIOS OF LOWERING BACK-PRESSURES

Well—	Length tubing, ft.	Diameter of bean, in.	Pressure at well, lbs.	Pressure at beans, lbs.	Oil, bbls. per day	Gas-oil ratio, cu. ft. per bbl.
C	1,708	¾	...	...	161	1,443
C	1,708	1	...	...	457	1,345
C	1,708	3	...	...	522	1,296
B	....	4-in. pipe	35	0	1,475	492
B	....	½	210	180	689	418
B	....	⅝	205	175	1,353	431
B	....	¾	200	160	1,471	479
B	....	⅞	180	128	1,612	490
D	....	1	175	105	1,709	487
D	....	⅝	200	180	573	476
E	....	¾	190	185	1031/2	427
E	....	¾	205	200	318	440
E	....	⅝	225	215	328	485
E	....	½	225	185	738	485

STRAIGHT FACTS

THE FIFTH AD OF THE SERIES AND THE SECOND DEVOTED TO AXELSON PUMP LINERS

. . . behind the scenes

IN RESPONSE to trade demand created by the increasing interest in durable and economical liners, Axelson has developed a liner of chrome nickel alloy steel manufactured by the most modern and efficient methods. Two factors are paramount in all Axelson machining processes, accuracy and workmanship. They dominate every manufacturing operation. Every operation, every test is designed to produce a liner with interior and exterior surfaces perfectly concentric, a liner with end surfaces absolutely perpendicular to the bore, a liner of long life that wears uniformly. They are apparent in the operation of specially built machines that mill both ends of the liner, in others that rough bore four liners at a time and still others that turn simultaneously the five outside liner ribs. They are responsible for the minute attention given to finish and facing, finish boring and final honing. No method of finishing the inside of a cylinder is as accurate as the automatic expansion hone, an exclusive Axelson feature.

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AXELSON PUMP LINERS

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

GLYCERIN AS LUBRICANT

We are operating a small recompressor working on wet gas from our storage tanks which is being lubricated with chemically pure glycerin in order to have an oil-free product. This compressor is in our liquid gas department, working on gas not liquid. We are using 1 gallon of glycerin each 24 hours and the writer would appreciate your advising if we could cut this pure glycerin with water and still secure the proper cylinder lubrication?—P. Z.

It does not appear wise to dilute glycerin with water under these conditions where it is used as a lubricant. The viscosity of glycerin changes to a marked degree with the addition of water. Several tables showing the viscosity of glycerin-water solutions are given in Glycerol and the Glycols, by Lawrie, page 196, from which the data following are compiled.

Viscosity of Glycerin-Water Solutions

Glycerin per cent	Density at 68°F. (20°C.) (gms./cc.)	Viscosity C.G.S. units (centipoises)
10	1.0217	0.01364
20	1.0461	0.01846
30	1.0720	0.02585
40	1.0989	0.03791
50	1.1258	0.05908
60	1.1528	0.1031
70	1.1797	0.2149
80	1.2066	0.5534
85	1.2201	1.025
90	1.2335	2.076
95	1.2465	4.801

The viscosity of pure glycerin at several different temperatures and concentrations is shown from the Smithsonian Physical Tables, 7th ed., page 156.

Viscosity of Glycerin at Varying Temperatures

Glycerin per cent	Temperature °C.	Temperature °F.	Viscosity C.G.S. units
100	2.8	37.04	42.2
100	14.3	56.14	13.87
100	20.3	68.45	8.30
100	26.5	79.7	4.94
80.31	8.5	47.3	1.021
64.05	8.5	...	0.222
49.79	8.5	...	0.092

Glycerin is a good lubricant to be used under conditions where a mineral lubricating oil is soluble. Methyl and ethyl chlorides, and the liquefied petroleum gases require the use of a special lubricant for this reason. When large quantities of glycerin are required it is advisable to provide some means for its recovery. Under some conditions it may be discharged with the compressed gas into a trap set in the condenser where it collects and may be recovered because of the difference in specific gravity. From this point it is returned to the lubricating system.

GAS FROM CRUDE YIELD AND COMPOSITION

I wish to obtain information showing the yield of gas from crude oil during refining and cracking together with the composition of the gas at each stage; have you this sort of information?—E. L. H.

The yield of gas during the refining of petroleum will vary both in quantity and quality with the source and condition of the oil, the character of the distilling, cracking and condensing equipment, together with the extent to which distilling and cracking may be carried.

A complete statement of gas yields, including composition of the gas obtained during the refining of a fresh crude, including the cracking operation, was given by O. C. Brewster, in The Oil and Gas Journal, June 19, 1930, page 46; the summary is presented in the table.

	Crude stills	Coke stills	Dry gas from cracking	P.S. dist. release gas	Auto tar plant	P.S. dist. rerun stills	Total
Cubic feet gas	7	26	100	37	20	10	200
Gravity	1.76	1.11	0.825	1.40	0.975	1.80	1.07
Weight-pounds	0.938	2.295	6.296	3.952	1.488	1.373	16.342
Methane:							
Volume, per cent	5	47	68	18	53	4	49.13
Cubic feet	0.35	12.23	68.00	6.67	10.60	0.40	98.25
Weight-pounds	0.015	0.514	2.350	0.280	0.445	0.017	4.121
Ethane:							
Volume, per cent	12	15	15	24	20	10	16.81
Cubic feet	0.84	3.90	15.00	8.88	4.00	1.00	33.62
Weight-pounds	0.066	0.308	1.185	0.702	0.316	0.079	2.656
Propane:							
Volume, per cent	30	16	11	31	16	30	17.46
Cubic feet	2.10	4.16	11.00	11.46	3.20	3.00	34.92
Weight-pounds	0.344	0.482	1.275	1.327	0.371	0.348	4.047
Butanes:							
Volume, per cent	34	9	4	18	8	35	10.23
Cubic feet	2.38	2.32	4.00	6.67	1.60	3.50	20.47
Weight-pounds	0.362	0.353	0.608	1.013	0.243	0.532	3.111
Pentane and heavier:							
Volume, per cent	19	13	2	9	3	21	6.37
Cubic feet	1.33	3.38	2.00	3.33	0.60	2.10	12.74
Weight-pounds	0.251	0.638	0.378	0.630	0.113	0.397	2.407

The data represent the gas production of a plant including topping, cracking, rerunning and coke stills. The quality of the crude oil was such that approximately 30 per cent gasoline was obtained by straight running and an additional 30 per cent was produced by cracking. About 20 per cent of the original oil, in the form of residuum, was coked to provide a distillate which was added to the charging stock for the cracking stills.

STRAY CURRENT ELECTROLYSIS

Could you tell me where I may secure information relative to the electrolysis of gas and water mains such as is caused by street railway currents? I am particularly anxious to learn what steps have been successful in remedying the trouble on gas mains?—J. A. G.

A very good book on corrosion is that by Speller, "Corrosion—Causes and Prevention," pulished by the McGraw-Hill Book Co., New York City. This contains a chapter, page 542, on stray current electrolysis. The following has been arranged from this source:

Currents straying from electric railway tracks frequently find their way to water, gas lines, cables and other underground metallic structures. When this current leaves the structures through the earth, corrosion results. The magnitude of stray currents is determined by the design, construction, maintenance, and operation of the railway system. Insufficient substations causes large stray currents; similar results follow from defective bonding, rails of inadequate size, or failure to interconnect the tracks. Corrections of such of these features that may exist will be reflected in the economy of the railway operation and stop the electrolysis from this source.

The summary of good practice is based on the report of the American Committee on Electrolysis and contains the following heads:

Railways—Track Construction and Bonding; Track Insulation; Reinforcement of Rail Conductivity; Power Supply; Interconnection of Tracks; Insulated Negative Feeder System; Three-Wire System; Reversed Polarity System; Periodic Reversal of Trolley Polarity; Double Contact Conductor Systems; Alternating Current Systems.

Affective Structures—Location with Respect to Tracks; Avoidance of Contact; Conduit Construction; Insulation; Shielding.

Interconnections—Cable Drainage; Pipe Drainage.

The use of a good pipe covering is considered an excellent investment. No matter how long a bare pipe may be reasonably expected to last, if a properly applied coating will extend the life of the pipe only a few years the extra cost will be justified. The proper time to do this is when the pipe is new, otherwise thorough cleaning after removal from the ground is necessary before application of the covering.

The American Petroleum Institute, 250 Park Avenue, New York City, has published numerous reports on corrosion of various kinds, including that caused by stray electric currents.

CARBON BLACK AND LAMP BLACK

What is the difference between carbon black and lampblack as to manufacturing process and difference in quality?—D. G. S.

A recent article by W. G. Wiegand, Ind. Eng. Chem., Feb., 1931, page 178, mentions the conditions surrounding the preparations of carbon black and lampblack. A brief summary follows:

Carbon black is the deposit collected by impingement within the flame, while lampblack is the freet soot collected outside the flame. Either black may be obtained from the same material by changing the method of collecting.

"Impingement black" and "channel black" are better synonyms for carbon black than is "gas black." The difference in properties may be due to: (1)Carbon particles are removed before acrretions have time to form and hence remain very fine; (2) luminous carbon particles give off electrons, become positively charged and repel each other; (3) that the carbon particles are surrounded by a mixture of hot gases, and are influenced in their properties by this layer of adsorbed gas; (4) after deposition on the channel the continued high temperature and contact with the combustion gases affects the characteristics of the black.

The impingement process yields a carbon of a high state of subdivision, high tinctorial and hiding powers and brilliance. There are two types of carbon flame, the round and flat which can be used for producing carbon black by inserting a surface in the luminous portion.

Drafting or smothering or limiting the supply of air to the flames affects the size and shape of the flame, and the temperatures and combustion losses, thus finally influencing the yield. The carbon black from a round flame is grayer, has lower oil-absorbing power, less adsorptive activity, and less reinforcing effect in rubber compounding. For instance, a round-flame black was used in the proportion of 40 per cent in a rubber mixing which was vulcanized with diphenylguanidine, as accelerator. The tensile strength was 3,800 pounds per square inch and the elongation 580 per cent. For a similar mixing in which flat-flame black was used, the tensile was 4,700 pounds per square inch, the elongation 630 per cent. The yield from the round flame is much more sensitive to changes in rate of gas flow than the yield from the flat flame.

MOTALIN AND IRON CARBONYL

What is Motalin, reported to be an important motor fuel used in Germany, and what is the special chemical used to make it an antiknock fuel?—E. T. C.

Motalin, a product of the I. G. Farbenindustrie, A.G., is a normal gasoline to which has been added, as the knock inhibitor, iron carbonyl. This substance is a compound of iron and the bivalent group CO, a group found in the ketones and aldehydes. As with other effective inhibitors, small quantities are used, although much more is required than of the stronger substances. Iron carbonyl has been recognized as effective in suppressing the knocking tendency of gasoline when used in a high compression motor to the extent of 0.1 per cent.

Iron carbonyl is a liquid under normal conditions and is not considered to be of a poisonous character; however, when heated, or upon the addition of water, it will decompose with the liberation of the dangerous gas carbon monoxide. The formula for iron carbonyl is $Fe(CO)_5$. Its specific gravity is 1.47; melting point —5.8° F.; boiling point 217° F.

The large scale manufacture of the carbonyl is carried out in large high pressure vessels at 300°-390° F., the materials used being reduced iron free of oxide, and carbon monoxide free from carbon dioxide. The reduced iron, which in the form of fine powder, is introduced into the reaction chamber; the carbon monoxide is allowed to stream over and through it under high pressure, and combination of a part of this gas with the iron takes place to form the iron pentacarbonyl. This iron carbonyl is a vapor at the temperature employed; it passes out of the reaction vessel with the unchanged carbon monoxide, from which it is separated as a liquid by cooling.

TRIETHANOLAMINE PROCESS

In the article entitled "Characteristics of Hydrogen Sulphide" which appeared in the March 5 issue of The Oil and Gas Journal mention was made of a process for hydrogen sulphide removal from gas using triethanolamine as the active reagent and it was neglected to state that this process is covered by patents owned by The Girdler Corp., Louisville, Ky. The development work was done by R. R. Bottoms, director of The Girdler Corp.

Repress to Make Zero Cold Test Oil

Magnolia Petroleum Co. Uses Laboratory Control to Correlate Operation of Wax Distillate Stills and Presses

By W. T. Ziegenhain

As a result of correlating the operations of the wax distillate stills and the wax house by means of simple laboratory tests, and the installation of equipment for double pressing, the Magnolia Petroleum Co., at its Beaumont, Tex., refinery, is making zero cold test neutrals from paraffinic Mid-Continent crudes without going to chilling temperatures much below the cold test of the finished oil.

The new system, placed in operation late in 1930, is handling approximately 3,200 bbls. of wax distillate daily. This distillate is made from Mid-Continent and Panhandle crudes and these are received separately in the plant.

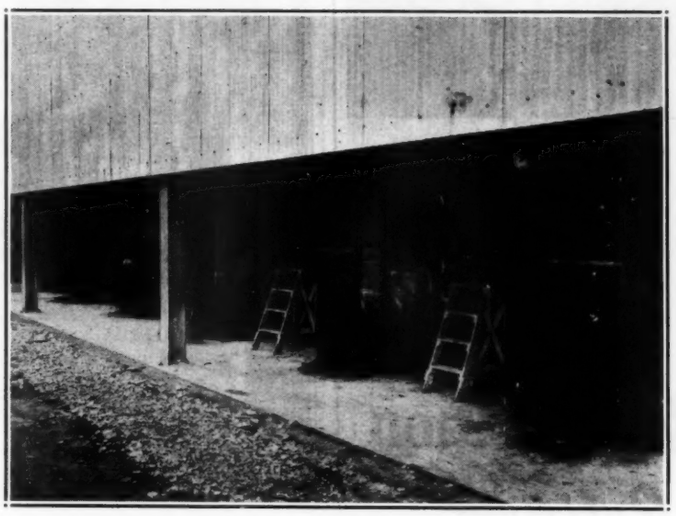
The description of the dewaxing process as detailed later, applies to operating conditions when running a normal mixture, but when the proportion changes, only slight alterations are made, the principal change being in the operation of the stills. This is particularly true when the proportion of Panhandle crude is increased, because of its high wax content.

Laboratory Control

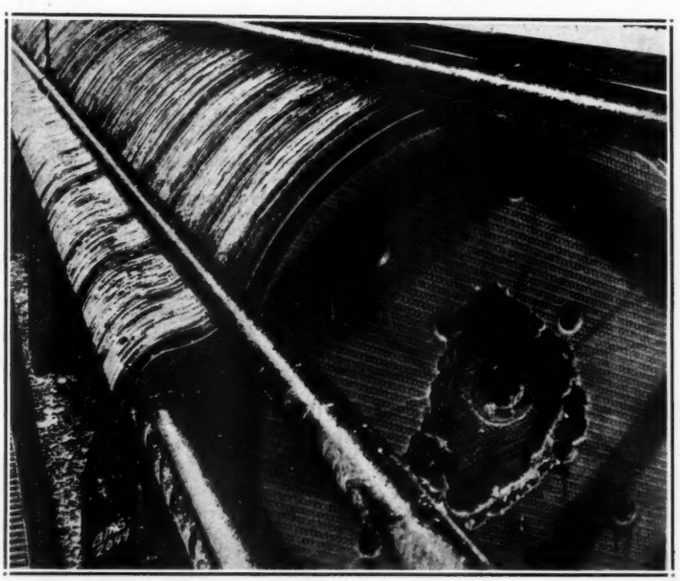
In correlating the laboratory control of the stills and the dewaxing operations, two simple tests on the wax distillate stream serve as a guide. Maximum yields of the finished neutrals have been found to be indicated by high viscosities and the ease and completeness of dewaxing has been found to be indicated by the effectiveness of its fractionation. Using these two facts, the company has devised a simple laboratory control procedure whereby samples of the wax distillate stream are taken periodically and first run for viscosity and then 400 cc. of the oil are distilled at 10 mm. absolute pressure in a still equipped with a Hemple chain tower. For the regular pipe line mixture of crude, it has been found advantageous to hold the viscosity of the wax distillate between 66 and 68 seconds at 100° F. The desired viscosity is predetermined by the operators, principally as a result of experience and is one of those factors which must be agreed upon by the operators and control laboratory after repeated trials, on a given set of plant equipment.

With the viscosity established as one of the limiting factors, the stills are operated to yield a wax distillate having as near a straight line distillation curve as practicable. It is also desirable that a minimum percentage of the total overhead distill above 800° F. (based on 760 mm. pressure) as determined on the laboratory vacuum still. A sharp turn upward between 800° F. and the endpoint has been found to indicate the formation of a gummy wax cake during pressing, especially when the percentage of this fraction is more than 8 per cent of the 400 cc. charge. Under ordinary conditions, the percentage distilling above 800° F. ranges from 5 to 7 per cent, but often runs as low as 2 per cent.

It should be understood that 800° F. is a calculated temperature and not the actual temperature in the top of the vacuum tower. The actual temperature in the tower is 510° F. but the oil at the point of flash is under only 10 mm. pressure, so because the boiling point of the oil is a function of the pressure as well as temperature, and these have a direct relation to each other, it is possible to convert the actual temperature at 10 mm. to its equivalent at atmospheric pressure. The procedure has come into general use and besides permitting a comparison of results it is obvious that the oil could not be subjected to 800° F. without causing some cracking.



Battery of direct expansion Carbondale chillers. These nine units operate as three series of three units each.



Close-up of wax cake formed during the repressing operation. Although this wax has too low a melting point to be of commercial value other than as a charging stock for the cracking units, it is dry enough that the operator can spud it off as quickly as the high melting point wax recovered in the first pressing operation.

Processing Method

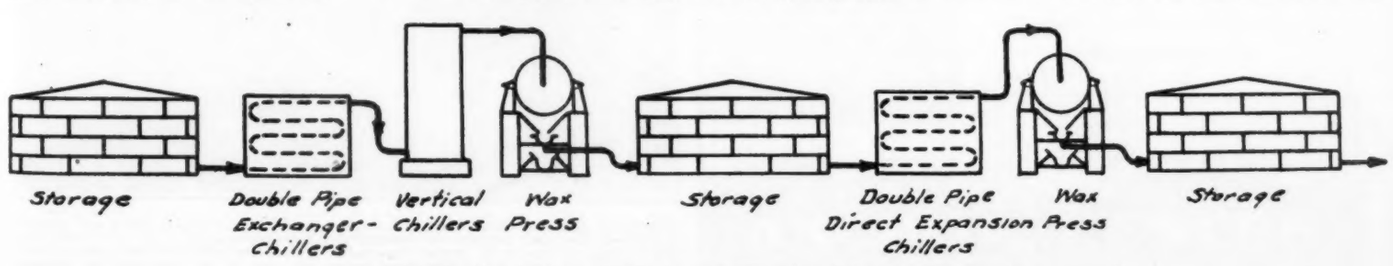
The general scheme of processing the oil at the Magnolia plant does not differ materially from the conventional repressing procedure but because of the use of direct expansion chillers, improved design of equipment, its modern arrangement and the smoothness of the entire operation, a discussion of this plant is of timely interest. As the wax distillate comes from the tube stills it is condensed in the ordinary manner and goes to rundown tanks and then to storage. It is kept in undisturbed storage for 15 days before it is removed for processing. This is considered an important step in preparing the wax distillate for the presses, for, during this time, the wax crystals apparently have time to grow and take a shape more desirable for pressing than when processed without standing.

From storage the oil is charged to 5 Gray chillers and then goes to 6 standard presses of 550 plates each. The oil entering these presses is approximately 38° F. and a small percentage of leakage is not only permissible but desirable. A small percentage of the pressable wax is allowed to come through in order to build up a more porous cake during the repressing operation. The amount of wax lost is too small to outweigh the benefits derived later. The oil from the first step in dewaxing, is run to insulated surge tanks from which it is picked up and run to the direct expansion Carbondale chillers.

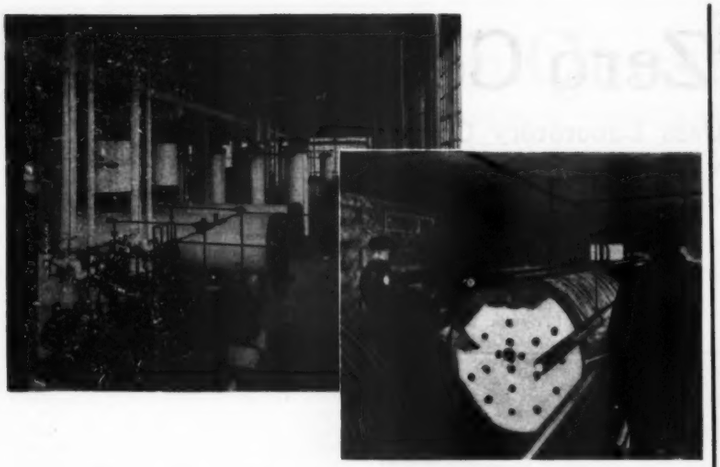
These chillers have been assembled in three series of three units each. The accompanying picture shows these chillers and the method of housing them. This method of housing promotes safety in case of an ammonia leak, facilitates the speedy repair or replacement of any parts and is economical to build. The open construction does not place an additional load on the refrigerating system because of the effectiveness of the heavy insulation, covering the coils. Each unit is made up of 6-inch tubing 30 feet long, stacked 2 abreast and 9 deep. While passing through the three units, the oil is chilled to minus 8° F. Chilling to this temperature is done by the direct expansion of the ammonia in the coils. A single pumping forces the oil through the chillers and through the presses. This is done by a Worthington reciprocating type pump operating against a back pressure of 775 pounds, the pump being placed just ahead of the chillers.

Repressing Operation

Repressing of the partially dewaxed oil is carried out in a new 85'x229' wax house enclosing 16 standard new type Carbondale presses, each made up of 550 plates of 48-inch diameter. These are separated by one-half-inch ring spacers. These presses are arranged in parallel pairs, each pair of presses being enclosed in a room. The side walls of the room are constructed of brick and of sufficient thickness to not only help support the roof and thus reduce the cost of con-



Simplified flow chart showing processing of wax distillate through the two stages of pressing.



Zero Cold Test Oils

Refrigerating, chilling and pressing. Each phase of refining for zero cold test oils requires equipment which is planned to meet the exacting needs. Significant is the fact that in the majority of America's refineries Carbondale Refrigerating and Chilling Machinery as well as Filter Pressers predominate.

This overwhelming preference is a sincere testimonial to the dependable and economical service which Carbondale Equipment has rendered refiners for more than 37 years.

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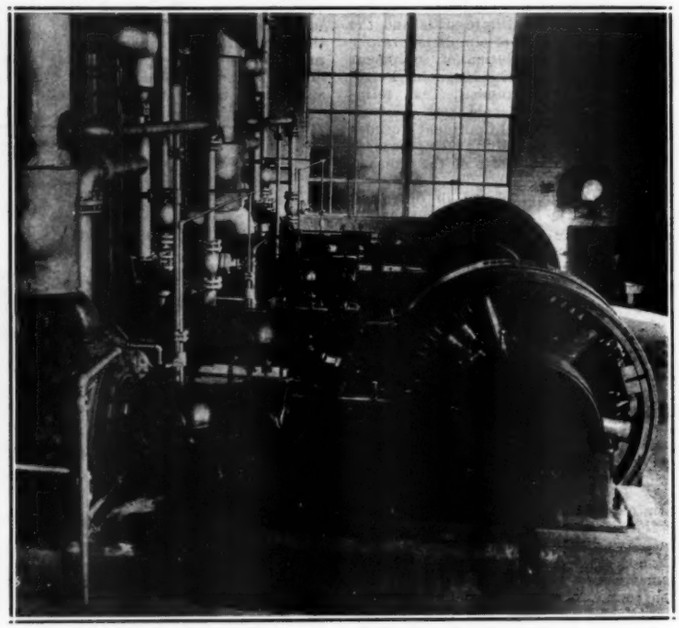
structing the building but offer sufficient insulation to make each room operate as a unit and permits making repairs or replacements on the presses in adjacent rooms without interfering with the operation of the other presses. An overhead track is suspended through the line of doorways along the entire length of the building and leads to the blanket repair room. This expedites repairs and promotes safety.

The general operation of these presses is conventional except that extreme care is taken to prevent leaks. As each press is brought into service, it is made up under 1,200 pounds pressure and locked. The cold oil (—8° F.) is slowly fed to the plates for a period of 4 hours, permitting a film of wax to build up. Then the flow is increased at a rate not to cause a pressure increase exceeding 20 pounds per hour. When the back pressure reaches 450 pounds the rate of feed is not increased further. The oil continues through the press for a period of 24 hours, the pressure not being allowed to exceed 450 pounds. With the preliminary steps in preparing the oil controlled as briefly outlined, this method of operating allows a dry wax cake to form and this is as easily spudded off the blankets as the cake which forms during the first pressing. It usually takes two men five hours to dump one of these presses.



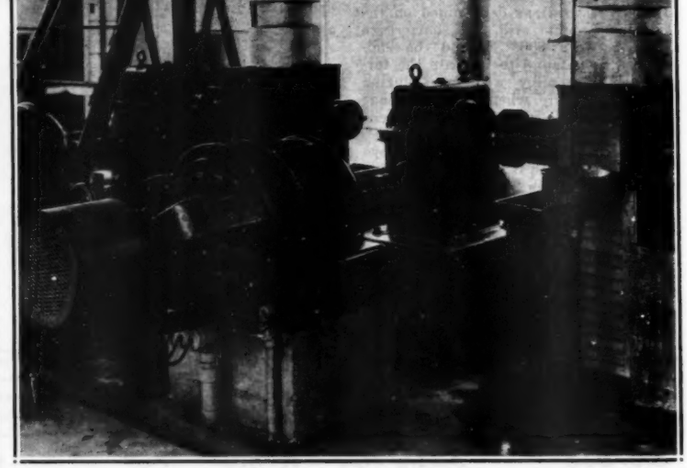
General view of two-stage compressors, each supplying 97 tons of refrigeration.

Nature of Products

The wax recovered in the first pressing operation is further processed and made into three grades, namely, 124-126 E. M. P., 128-130 E. M. P. and 130-133 E. M. P. The wax resulting from the second dewaxing or repressing operation has a melting point approximately 80 and because of this, is not further processed except that it is blended along with the regular charging stock for the pressure stills. The dewaxed oil is continuously withdrawn from the system and after utilizing its refrigerating value in another department of the plant, is fractionated to make a finished 100 viscosity neutral and a 200 viscosity neutral.

Pumping Arrangement

The method of pumping the cold dewaxed oil from the press tanks through the exchanger coils in another department and then to storage for rerunning is unique, permitting extreme flexibility



The above assembly includes a variable speed motor, reduction gear and pump directly connected. The pump removes the dewaxed distillate continuously as the oil comes from the presses and runs it to another department of the plant where its refrigerating value is utilized. By using a variable speed motor, this step in the operation has afforded considerable flexibility.

of operation and compactness in the arrangement of the equipment. The accompanying picture shows a variable speed General Electric Motor directly connected through a Foote Brothers reduction gear to a Goulds pump. As the quantity of oil coming from the presses varies, the motor is speeded up or retarded proportionately.

Refrigerating System

Approximately 194 tons of refrigeration is available to the new system as a result of installing the two 97-ton Worthington two-stage compressors shown in the accompanying picture. Only one of these operates during the greater portion of the year, the full output of both compressors being used only during the extreme heat of midsummer. As an approximation, the system receives the effect of 100 tons of refrigeration from the Gray chillers supplied by an absorption unit and then 194 tons additional refrigeration is available from the new plant. Approximately 50 tons refrigeration is supplied to another department of the plant by the dewaxed oil.

LOUISIANA-ARKANSAS PROVEN AREAS

(Continued from Page 38)

RICHLAND PARISH

Ark.-La. P. L. Co.'s No. 5-C Thomason, 350 ft. S, 217 ft. E, SW cor. NE NE, Sec. 21-16-6e.....Set 15-in. 325 ft; T.D. 345 ft.
Richland Operating Co.'s No. 1 Cooper, 600 ft. N, 600 ft. W, SE cor., Sec. 13-16-6.....Set 8-in. 870 ft; drlg. 1,790 ft.

Southern Carbon Co.'s No. 1 J. O'Neal, 660 ft. N, 760 ft. E, SW cor., Sec. 36-17-6e.....Location.
Southern Carbon Co.'s No. 2-B Thomason, 1,980 ft. S, 2,080 ft. W, NE cor., Sec. 23-16-6.....Cmtd. 6-in. 2,285 ft.
United Carbon Co.'s No. 2 Cooper, 660 ft. N, 3,551 ft. E, SW cor., Sec. 13-16-6.....Location.
United Carbon Co.'s No. 1 Lindow, 1,980 ft. S, 37 ft. E, NW cor., Sec. 15-16-6.....Drlg. 2,045 ft.

SABINE PARISH—ZWOLLE

Bradley Drlg. Co.'s No. 1 Newton, 600 ft. W, 600 ft. S, NE cor. NW SE, Sec. 25-8-12.....Dry and abd. 2,575 ft.
W. M. Coats' No. 2-A Sabine Lbr. Co., 330 ft. S and E, NW cor. NW SW, Sec. 1-7-12.....Drlg. 1,730 ft.
W. M. Coats' No. 3 Sabine Lbr. Co., SW cor. SW NW, Sec. 1-7-12.....Bldg. derrick.
O. A. Gautier et al's No. 1 Mischell, 330 ft. E, 150 ft. N, SW cor. SE NW, Sec. 30-8-12.....Skidded over 15 ft. east; rigging up second hole.
Ab Jones et al's No. 1 Ferguson, 330 ft. N, 330 ft. W, SE cor. NE SW, Sec. 33-8-12.....S.D.; W.O. 2,528 ft; S.O.
Lacy Prod. Co.'s No. 3 Cooper, NW cor. SW NE, Sec. 30-8-11.....Location.
Loring Oil Co.'s No. 16 Bowman-Hicks, approximately 1,000 ft. S, 330 ft. E, NW cor., Sec. 9-7-12.....Rig up.
Ohio Oil Co.'s No. 6 Bowman-Hicks, 330 ft. N, 265 ft. W, C, Sec. 2-7-12.....W.O.S.R; 1,800 ft. fluid 2,509 ft.
Ohio Oil Co.'s No. 7 Bowman-Hicks, 250 ft. N, 1,370 ft. E, SW cor. NW NE, Sec. 2-7-12.....Drlg. 2,050 ft.
H. W. Perritt's No. 2 Bowman-Hicks, NW cor. SE NE, Sec. 2-7-12.....Completed Feb. 11; estimated 2,000 bbls.; T.D. 2,280 ft.
H. W. Perritt's No. 3 Bowman-Hicks, 244 ft. S, 122 ft. E, NW cor. SE SW, Sec. 2-7-12.....Set 6⅝-in. 2,206 ft.
J. M. Tompkins' No. 1 M. R. Stoker, 300 ft. S, 100 ft. W, NE cor. SW, Sec. 10-7-11.....Dry and abd. 2,520 ft.
Triangle Pet. Co.'s No. 2 Sabine Lbr. Co., 330 ft. N and E, SW cor., Sec. 36-8-12.....Derrick.
J. C. Walton's No. 1 Sabine Lbr. Co., 300 ft. S, 300 ft. W, NE cor. NW, Sec. 11-7-12.....Set 6⅝-in. 2,119 ft.

SABINE PARISH—PLEASANT HILL

John Henry O. & G. Co.'s No. 2 Cooke Land Co., 1,990 ft. S, 1,640 ft. E, NW cor., Sec. 34-10-12.....Dry and abd. 3,310 ft.

WEBSTER PARISH—SAREPTA

Cassidy & Davis' No. 1 Nickerson, 300 ft. S, 300 ft. W, NE cor. SW, Sec. 29-23-10.....S.D. 150 ft.

ARKANSAS

OUACHITA COUNTY—SMACKOVER

L. H. Hamilton's No. 3 Doyle, 100 ft. E, 400 ft. N, SW cor. SE SE, Sec. 23-15-16.....Cmtd. 6-in. 2,010 ft.

OUACHITA COUNTY—STEPHENS

J. D. Reynolds' No. 1 Grayson, Sec. 21-15-15 (Stephens Townsite).....Cmtd. 6-in. csg. 2,150 ft; T.D. 2,190 ft.
Wesson & Bonner's No. 1 Wesson, 500 ft. W, 175 ft. N, SE cor. SW NW, Sec. 22-15-19.....Setting packer to cut off wtr. flow 2,169 ft.

UNION COUNTY—CHAMPAGNOLLE

Ohio Oil Co.'s No. 3 Furlough, 408 ft. N, 192 ft. E, SW cor. NW NE, Sec. 12-17-14.....Derrick.
Ohio Oil Co.'s No. 2 Raulston, 330 ft. S, 330 ft. E, NW cor. NW SE, Sec. 12-17-14.....Derrick.
Ohio Oil Co.'s No. 5 R. Pumphrey, 660 ft. S, 660 ft. W, NE cor. NW, Sec. 12-17-14.....W.O.S.R; to pump 3,011 ft; 1,500 ft. fluid.

UNION COUNTY—EL DORADO

Rice Drlg. Co.'s No. 1 Watley, 150 ft. S, 150 ft. E, NW cor. SW, Sec. 7-17-15.....S.D. funds; T.D. 2,186 ft.
Southern Prod. Co.'s No. 1 Wingfield, NE cor. SE NW, Sec. 16-19-15.....Drlg. hard shale 2,500 ft.

UNION COUNTY—URBANA

Marine Oil Co.'s No. 1-E Thompson, 330 ft. N, 330 ft. W, SE cor. NW NE, Sec. 10-18-13.....Set 10-in. 317 ft; drlg. 1,710 ft.
Marine Oil Co.'s No. 2-E Thompson, 330 ft. N, 330 ft. E, SW cor. NE NE, Sec. 10-18-13.....Location.

EAST TEXAS

HARRISON COUNTY

Calatex O. & G. Co.'s No. 6 Argus, 755 ft. N, 699 ft. W, Mile Post 27, in J. Womack Sur.....Location.

PANOLA COUNTY

Ark.-La. P. L. Co.'s No. 13 Louis Werner, 1,590 ft. S, 600 ft. W, SE cor. Carrie Steele tr., B. C. Jordan Sur.....Drlg. hard lime 3,135 ft.
Daisy O. & G. Co.'s No. 1 Rucks, John Palmer Sur.....Drlg. 2,500 ft.
Dillon & Bradham's (was W. G. Banks et al's) No. 1 C. O. Baldwin, 1,395 ft. W, 1,362 ft. S, NE cor. Baldwin 290 ac. in Hampton West Sur.....S.D. 905 ft.
S. E. Bell et al's No. 1 Burnett Lbr. Co., C, S. B. Hendricks Sur.....Drlg. 3,188 ft.
C. D. Neff et al's No. 6 Brumble, B. C. Jordan Sur.....Derrick.
Knox et al's No. 1 Dunham, Chas. Haley Sur.....S.D. 3,110 ft.
United Prod. Corp.'s No. 17 Steele, 1,320 ft. N, 660 ft. W, SE cor. C. D. Steele lse. in B. C. Jordan Sur.....Location.

MISSISSIPPI

HINDS COUNTY

E. B. Love et al's No. 1 Payne, Sec. 27-6-1e.....Drlg. 2,506 ft.
Cleve Love et al's No. 2 Ridgeway-McGhee, SE cor. NW, Sec. 2-5-1e.....Rigging up.
Love Pet. Co.'s No. 1 Maley, Sec. 15-5-1e.....S.D. 2,495 ft; W.O.
Love Pet. Co.'s No. 2 Maley, 740 ft. E, 1,100 ft. S, NW cor. NE NW, Sec. 15-5-1e.....Set 7-in. 2,458 ft.
Pirtle & Flint's No. 1 Payne, 450 ft. W, 50 ft. N, SE cor. SW SW, Sec. 27-6-1e.....Coring chalk 2,544 ft.

RANKIN COUNTY

Miss. G. & F. Co.'s No. 1 Hanna, SW cor. SW, NE, Sec. 14-5-1e.....Derrick.
Pioneer O. & G. Co.'s No. 1 Ragland, NE cor. SW SW, Sec. 12-5-1e.....Drlg. 2,275 ft; Wilcox.

The Anchor Engineer found that this Tractor could pull a load of Line Poles but

Could Not Budge A Drive Anchorage

FOR over thirty-five years Anchor Fences have been set with drive anchors. During this period, they have withstood mechanical tests and the severest test of all . . . TIME.

Anchor drive anchors is the simplest and most effective foundation for a fence post. Driven into the ground the Anchor blades grip the soil like the roots of a tree.

Have the local Anchor Fencing Specialist explain this exclusive feature.

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ANCHOR FENCES

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Billions of Bubbles

Finding A Way Out

REMEMBER the story of the folding-bed that clapped shut on its inventor? When friends came to his aid, was he worried? Not much. He was standing on his head inventing a way to get out.

The Economic Depression, like a snappish folding-bed, stood business on its head before anybody knew just what had happened.

But, thanks to a few level heads (some heads are level under any circumstances), a way has been invented to restore equilibrium—let everybody buy now what he needs, irrespective of whether his neighbor buys or not.

And speaking of inventing, Campbell engineers during the lull have been pretty active. For instance, there's the new plate for the "Oil-Froth" absorber, which greatly increases the film contact surface.

There are the C&B Gauge Peep Holes, which have changed gasoline- and oil-loading from an ordeal to a mere incident.

There's the C&B Air-Cooled Floating Tank Roof, which, in recent competitive tests on motor gasoline storage, showed a loss only a little over half that of the nearest competitor.

This equipment will be on exhibition at the Oil Equipment & Engineering Exposition, Los Angeles, March 16-22, Booth 238.

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Natural Gas Engineers
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STEARNS-ROGER MFG. CO., DENVER
MID-CONTINENT AGENCY

Originators of Oil-Froth Absorbers

WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 34)

HUGHES COUNTY

Wright et al's No. 1 Ott, SE SW Sec. 15-8-11 ..... Shut down 1,645 ft.

KAY COUNTY

Wilwright Gas Co.'s No. 1 Wildegrube, NE SW Sec. 14-27-1 ..... Drlg. 3,880 ft.
Lewis et al's No. 1 Harris, SE NW Sec. 14-25-1 ..... Location.
Peters & Buckles' No. 1 Hayes, NW NE NW Sec. 24-28-3 ..... Shut down 2,810 ft.
Mummert Drlg. Co. et al's No. 1 Cormick, C NW SE Sec. 9-27-2 ..... Shut down 2,700 ft.
Blackwell Oil & Gas Co.'s No. 1 Harshman, Sec. 2-26-1w .. Rig on ground.
Boucher Oil Co.'s No. 1 Jefferson, NE SW Sec. 32-26-1w .. Drlg. 3,482 ft.

KIOWA COUNTY

Christian's No. 1 Jones, NE SE Sec. 8-7-18w ..... Rig.

LATIMER COUNTY

Choctaw Gas' No. 1 Weaver, C NE NW Sec. 4-6-18 ..... Drlg. 800 ft.
P. English's No. 1 Unknown, NW SE Sec. 16-6-19 ..... Shut down 300 ft.
LeFlore Oil Co.'s No. 1 McBee, NW cor. Sec. 3-7-21 ..... Shut down 3,601 ft.

LE FLORE COUNTY

D. S. Howard et al's No. 1 Holmes, SE SW NW Sec. 16-3-22 ..... Shut down 1,300 ft.

LINCOLN COUNTY

Mote-Wheeler's No. 1 Stafford, NW NE Sec. 32-17-4 ... Drlg. 3,224 ft.

LOGAN COUNTY

Eason Oil Co.'s No. 1 Young, C SW NE SW Sec. 34-17-4w .. Sand 4,919-42 ft.; made 870 bbls. 21 hrs. and 485 bbls. the second 24 hrs.

McINTOSH COUNTY

Patterson et al's No. 1 Smith, SW cor. NW SE Sec. 32-9-16 ..... Fishing 5,687 ft.

MUSKOGEE COUNTY

Rebold's No. 1 Miller, SE NE NE Sec. 32-13-19 ..... Rig.
Sioux Oil Co.'s No. 1 Unknown, NW SE Sec. 21-11-19 .... Shut down 1,011 ft.

OKFUSKEE COUNTY

Henry Oil Co.'s No. 1 Harjo, Sec. 36-12-9 ..... Shut down 4,127-57 ft.; water; plugged back to 3,161-85 ft.; showing 10 bbls.
E. L. Robinson's No. 1 Rice, NW Sec. 2-10-9 ..... Location.
Shepard et al's No. 1 Neveas, SE NW SW Sec. 3-12-10 .. Shut down 3,690 ft.

OKLAHOMA COUNTY

Citizens Oil Co.'s No. 1 Sage-Barber, NE cor. Sec. 21-11-3w ..... Shut down 1,200 ft.
L. C. Hivick's No. 1 Sunset Addition, NW SW NW Section 17-11-3w ..... Shut down 5,515 ft.
J. F. Cuniff, trustee's No. 1 Church Land, NE NW SE Sec. 17-12-4w ..... Shut down 6,700 ft.

PAWNEE COUNTY

Rookstool's No. 1 Wylie, NW NE SW Sec. 6-20-5 ..... Shut down 1,950 ft.
Sperry et al's No. 1 Mullrap, SE SW Sec. 2-22-5 ..... Shut down 1,740 ft.
Cochran et al's No. 1 Green, NE cor. SW Sec. 15-23-5 .... Rig.

PITTSBURG COUNTY

Vincent et al's No. 1 U. S. Coal Land, NW SE Sec. 9-5-14 ..... Spudding.
J. Morrison's No. 1 Fowler, NE SE Sec. 13-7-17 ..... Rig.
C. Kennedy's No. 1 Travis, C SW NE Sec. 15-7-14 ..... Rig.
C. Canady's No. 1 Jones, NW cor. Sec. 14-8-14 ..... Rig.

POTTAWATOMIE COUNTY

Droppleman et al's No. 1 Jones, SE NW Sec. 21-8-3 .... Rig.
J. E. Crosbie et al's No. 1 Brown, NE NW SW Sec. 2-9-4 ..... Drlg. 4,300 ft.

ROGER MILLS COUNTY

Ute Oil Co.'s No. 1 Williams, C SW Sec. 23-12-24w .... Drlg. 3,510 ft.
L. C. Hivick's No. 1 Davis, C NW NE Sec. 4-11-26w .... Shut down 2,905 ft.

SEMINOLE COUNTY

Sunray Oil Co.'s No. 1 Sunday, NW SE Sec. 35-5-5 ..... Location.

STEPHENS COUNTY

Junior Oil Co.'s No. 1 Thompson, CNL SE SE Sec. 1-1-7w ..... Shut down 3,329 ft.
Ross Southard's No. 1 McKinney, NE cor. Sec. 25-1-8w .. Shut down 1,062 ft.

WASHITA COUNTY

Cooper & Terhune's No. 1 Blocker, NW cor. Sec. 29-8-19w . Drlg. 1,476 ft.
Burns & Prince's No. 1 Deck, SW cor. Sec. 21-8-18 ..... Shut down 100 ft.
Petroleum Holdings, Inc.'s No. 1 Music, NW cor. Sec. 10-9-20w ..... Shut down 280 ft.

WOODWARD COUNTY

Prairie Oil & Gas Co. et al's No. 1 Wilbur, NE cor. NW Sec. 22-23-17w ..... Shut down 7,445 ft.

OKLAHOMA PANHANDLE

TEXAS COUNTY

Three Way Oil Co.'s No. 1 Crane, SW NW Sec. 11-1-18 ..... Shut down 4,425 ft.
Palo Alto Oil Co.'s No. 1 Graves, NE SW SW Sec. 23-2-18e ..... Spudded; shut down.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Stewart-Howland's No. 1 Howard, NW SE NW Sec. 6-4s-11 ..... Shut down 100 ft.
Brookshire's No. 1 R. W. Rowland, NW NE SE Sec. 18-3s-10 ..... Shut down 400 ft.

BRYAN COUNTY

Bryan County Oil's No. 1 Childs, NW SE SW Sec. 7-7-10 . T. D. 650 ft.
Bush et al's No. 1 Commerce Trust, NE cor. Sec. 35-6s-9 ..... Shut down 690 ft.
Johnson et al's No. 1 Ussery, SE SW SE Sec. 14-16s-7e .. Shut down 485 ft.

CARTER COUNTY

Campen-Lasater Co.'s No. 1 Anderson, NE cor. SE NE SE Sec. 32-4s-2 ..... Shut down 2,806 ft.

COTTON COUNTY

Gilbert-Lowery's No. 1 Harneg, C SE SE Sec. 4-2S-11w .. Drlg. 2,035 ft.

JEFFERSON COUNTY

Smith's No. 1 McCarty, SE NW NE Sec. 18-4s-8w ..... 18-7w ..... Rig.
C. V. Chenault et al's No. 1 Grogen, SW NE SE Sec. 15-7s-6w ..... Location.
Smith's No. 1 M. O. Carty, SE NW NE Sec. 18-4s-8w ... Location.

LOVE COUNTY

Batson & Sterrette's No. 1 Dillard, SE NE NW Sec. 25-6s-3 ..... Show 5 bbls. 1,585-96 ft.; T. D. 4,433 ft.; P.B. to 1,604 ft.
Hobbs et al's No. 1 Roberts, NE cor. SW Sec. 20-6s-3w .. Shut down 3,130 ft.

MARSHALL COUNTY

D. H. Curry's No. 1 Ward, NE SE SW Sec. 15-5s-6 .... Drlg. 1,448 ft.
McCroy et al's No. 1 Adams, NE SW SE Sec. 21-7s-6 .... Show 10 bbls. 532-40 ft.; 12 hrs.

STEPHENS COUNTY

Andrea et al's No. 1 Patrick, C E half SE Sec. 3-3s-8w .. Abandoned 2,759 ft.
Obermyer et al's No. 1 Skelton, NE SW SW Sec. 32-15-7w ..... Shut down 1,375 ft.

CENTRAL WEST FIELDS

(Continued from Page 60)

ued at $162,596.68; Davies County, 82,208.05 bbls., value $88,939.97; Hancock County, 6,180 bbls., value $6,620.12; McLean County, 13,685.50 bbls., valued at $14,678.03; Henderson County, 6,246.06 bbls., valued at $5,496.23, and Muhlenberg County, 3,073.23 bbls., valued at $2,858.17. The figures do not include crude sold to the Aetna Oil Co. in Ohio County, as the report of this company has not been announced.

George Engle and others drilled a test on the G. O. Drake farm, 1½ miles south of the hamlet of Weir, in Muhlenberg County, and abandoned it at a depth of 1,204 feet as a dry hole.

The Cumberland Pipe Line Co.'s runs from Eastern Kentucky Field for February, 1931, totaled 158,425.83 bbls.

ROCKY MOUNTAIN AREA

(Continued from Page 40)

law contained no preferential right for renewal. This was not the bill sponsored by the Rocky Mountain Oil & Gas Association, which was defeated, but a substitute measure. It also gave the land board authority to enter into co-operative or unit development agreements with the United States Government and its lessees and permittees.

Pipe line runs of crude from the Dallas-Derby Field in Fremont County jumped to a daily average of 640 bbls. the past week, compared with 270 bbls. the previous week. This is reported due to a deal whereby the Atlantic-Pacific Petroleum Co. contracted 500 bbls. daily to the White Eagle refinery at Casper.

Converse County

Keen interest is being shown in the rotary test being drilled in the Big Muddy Field east of Casper by the Ohio Oil Co. in its No. 5 Jones, NW NE NE, Section 9-33-76. This was an old producer in the Frontier at 3,137 feet which is being deepened to test the Dakota and Lakota sands. It is shut down at 4,367 feet on top of the Lakota waiting for control equipment. Cores taken in the Muddy and Dakota sands showed saturation, but no pressure, when tested by the Halliburton method. The Big Muddy was proven late in 1916 and the following year Wyoming witnessed the beginning of its biggest oil boom. The field at present is producing around 2,000 bbls. a day from the Wall Creek sands in the Frontier formation. Several years ago the Midwest Refining Co. drilled a test to the Lakota which was reported to have produced 250 bbls. a day from the Dakota at 4,203 feet and 50 bbls. from the Lakota at 4,362 feet. The Sundance, which is a good producer in Salt Creek, has never been tested in the Big Muddy. The field is about 5 miles long. The Ohio Oil Co., the Continental Oil Co., and the Texas Production Co. are the principal operators. The Wall Creek is found at 3,200-3,400 feet.

John Ackard's No. 1 Morton, 6 miles north of Douglas, a doodlebug location, is reported drilling at 1,100 feet. The Shannon was logged at around 800 feet.

Natrona County

Midwest Refining Co.'s No. 11 Middy, C NE NE, Section 23-35-79, Midway Dome, is making new hole at 5,235 feet after cementing off the second Wall Creek at 5,150-5,215 feet. The second Wall Creek proved somewhat of a disappointment after coming in last year for 400 bbls. daily with 200 bbls. of water. The water was plugged off and the well was produced for several months. The output finally dropped to 60 bbls. and it was decided to go back into the hole with rotary bit and test lower formations.

Summitt Oil Co.'s No. 1 Trevett, NW NW, Section 21-33-80, North Platte, is shut down at 1,220 feet for material.

Park County

Resolute Oil Co.'s No. 1, NE SW NE, Section 17-57-101, Badger Basin, the deepest hole in the Rocky Mountain area, which had a show for 1,000,000 feet of gas and a small quantity of oil in the first Wall Creek at 8,245 feet, is bottomed at 8,345 feet. The bailer dropped 7,000 feet and went below the casing shoe on 5⅜-inch string. Drilling has been in a 3½-inch hole since the tools were sidetracked, but not cemented into the wall.

Big Horn County

Ohio Oil Co.'s No. 1 Smith, Lot 61, Section 33-56-97, Garland Dome, is drilling at 1,215 feet.

Washakie County

Ohio Oil Co.'s No. 1 Strothers, SW SE NW, Section 19-45-92, Neiber Dome, the rotary test which is expected to go 7,000 to 8,000 feet, spudded to 102 feet at which depth the 20-inch conductor pipe was set. The Noble Drilling Co. has the contract. The Ohio company furnishes almost everything except the tools and labor. The deal for the testing of this structure resulted in an agreement with the Grebo Royalties, Inc., the permit and leaseholders for a co-operative group development approved by the Secretary of the Interior.

Fremont County

Proudcers & Refiners Corp.'s No. 10, SE NW SW, Section 14-32-95, Big Sand Draw, is coring at 4,757 feet in hard shale. The hole is reamed to 4,746 feet. The Texas Producing Co.'s No. 1 State, SW SW, Section 36-34-95, Alkali Butte, is bottomed at 4,485 feet with 6⅝-inch at 4,463 feet, and is cementing.

Lincoln County

Wyoming Production Co.'s No. 1 Neil, NW SE NW, Section 14-24-113, Fontenelle district, is drilling ahead after landing the casing on bottom at 1,225 feet. It recently had a show of oil and gas in a coal seam.

Rocky Mountain Production

Average daily runs from fields week ending March 14:

WYOMING	
Salt Creek	24,570
Big Muddy	1,930
Byron	10
Dallas-Derby	640
Dutton Creek	110
Elk Basin	750
Ferris	20
Frannie	880
Grass Creek	2,080
Greybull	10
Hudson	200
LaBarge	1,710
Lance Creek	190
Lost Soldier	3,780
Lovell	10
Oregon Basin	1,540
Osage	800
Rock River	2,050
Poison Spider	290
South Casper	250
Teapot	20
Total Wyoming	41,540
MONTANA	
Buckley-Border	540
Cat Creek	1,090
Dry Creek	780
Kevin-Sunburst	4,240
Lake Basin	60
Pondera	1,710
Total Montana	8,420
COLORADO	
Florence	370
Fort Collins	1,010
Iles	960
Orchard	380
Moffat	1,040
Rangely	50
Tow Creek	360
Total Colorado	4,170
NEW MEXICO	
Rattlesnake	1,200
Hogback	440
Table Mesa	65
Artesia	705
Cap Rock	481
Getty	166
Hobbs	30,581
Jal	1,179
Lea	2,605
Eunice	2,167
Texas Pacific area	221
Total New Mexico	40,114
Total Rocky Mountain	94,244
Total previous week	89,343
Difference	4,901

MONTANA

Montana reported one completion in the 67 Petroleum Co.'s No. 1 McSweeney, NE NE, Section 29-33-1e, in Toole County, reported dry at 1,700 feet. Formations were abnormal and no sands were encountered.

Liberty County

G. G. Howard's No. 1 Schooniver, NW, Section 18-36n-6e, Bear's Den district, is a new location. Material is being moved in. Western Natural Gas Co.'s No. 1 Poindexter, C SE SE, Section 17-37-4e, Whitlash district, is drilling at 1,800 feet. It had 1,000,000 feet of gas in sands at 1,360-75 and 1,490-1,711 feet. The objective is the Sunburst sand. Utopia Oil Co.'s No. 1 Eleanor, SE SE, Section 11-33-6e, Utopia district, is bottomed at 3,214 feet with a hole full of water from the Ellis-Madison contact which came in when the tools were loosened. The tools were pushed up the hole by pressure from below and lodged.

Toole County

International Royalty Holding Co.'s No. 1 Henry, SW cor., Section 26-35-3e, Grandview, which had sulphur water in the Ellis-Madison contact at 2,590 feet and reported preparing to abandon, will be drilled deeper. Efforts are being made to land 6¼-inch on bottom at 2,650 feet for a water shutoff. A-1 Petroleum Co.'s No. 1 Barthelote, SE NE, Section 24-36-1e, is drilling at 1,585 feet after landing 6¼-inch at 1,350 feet.

Glacier County

B. & H. Oil Co.'s No. 1 Haines, C SE SE, Section 2-34-6w, Cut Bank district, which had a good show of oil in the top of the Sunburst sand at 2,761 feet when the casing dropped 30 feet, is swedging in an effort to get 5⅛-inch past the kinks.

Rosebud County

Prairie Oil & Gas Co.'s No. 1-X, Contract 4, SW NW, Section 26-10-39, Porcupine Dome, is drilling at 2,375 feet. The underreamer lug has been drilled up.

Golden Valley County

Texas Pacific Coal & Oil Co.'s No. 1 N. P., SW cor., Section 21-8n-21, Woman's Pocket, is drilling with rotary bit at 3,240 feet. It has had large quantities of sand and conglomerate for some time and may have struck a fault.

Carbon County

J. D. Cook and others' No. 1 Beartooth, C SW, Section 7-7s-21, is moving in. Recently J. D. Cook and Mark U. Weber were reported to have closed a deal with Beartooth Oil Co. for its permit on 611 acres on the Dry Creek structure. Arrangements have been made with Charles E. Orchard for the drilling of a well at once and the last named is moving a combination rotary and cable tools rig to location from Oregon Basin. The location is close to Ohio Oil Co.'s discovery well and about 100 feet south of a hole drilled to 750 feet by the Beartooth company before the deal was made. Ohio Oil Co.'s No. 1 Montana Industrial, SW NE, Section 11-7-21, is drilling at 3,950 feet, and its No. 1 Souders, SW SW, Section 2-7-21, is drilling at 1,340 feet.

NORTH AND WEST TEXAS

(Continued from Page 52)

No. 1 Morse, shot 400 quarts 2,541-73 feet, initial production 1 bbl. of oil with 1,500,000 feet of gas, total depth 2,631 feet.

COMPLETIONS IN NORTH CENTRAL TEXAS

Archer County

King and Hay's No. 1 De Moss, dry and abandoned, total depth 1,205 feet.

Wichita County

Clark and others' No. 13 Bickley, top pay 866 feet, initial production 77 bbls., total depth 877 feet. Comyer's No. 1 Woodward, dry and abandoned, total depth 1,010 feet. D. C. Thomas' No. 1 Burnett, temporarily abandoned, total depth 900 feet. The Texas Company's No. 394 Waggoner, top pay 998 feet, initial production estimated 25 bbls., total depth 1,011 feet.

Young County

B. C. Banner's No. 1 Jeffery, dry and abandoned, total depth 912 feet. Beavers and others' No. 1 Finch estate, dry and abandoned, total depth 752 feet. W. E. Bernhard's No. 1 Belknap Cattle Co., dry and abandoned, total depth 700 feet. Mc Best and others' No. 1 Husted, dry and abandoned, total depth 1,125 feet. McClung, Dawson and others' No. 1 Williams, dry and abandoned, total depth 636 feet. C. H. Robertson's No. 1 Boyd dry and abandoned, total depth 630 feet. W. R. Stafford's No. 1 Kay and others, dry and abandoned, total depth 512 feet. The Texas Company and McKanna's No. 6 Finch estate, oil sand 672-77 feet, initial production 54 bbls., total depth 677 feet. The Texas Company and McKanna's No. 7 Finch estate, dry and abandoned, total depth 724 feet. Watson and others' No. 1 Terrell estate, (Section 255), dry and abandoned, total depth 740 feet. Wooten and Reed's No. 3 Jordan, dry and abandoned, total depth 700 feet.

COMPLETIONS IN RANGER DISTRICT

Brown County

McGintey and Nrae's No. 1 McChristy, temporarily abandoned location.

Stephens County

Lone Star Gas Co.'s No. 4 Henry, temporarily abandoned, total depth 3,495 feet.

Coleman County

Arcadia Refining Co.'s No. 1 Burkett, oil sand 1,628 feet, shot 15 quarts 1,047-50 feet, initial production 107 bbls., total depth 1,650 feet. Arcadia Refining Co.'s No. 5 Golson, oil sand 1,576-89 feet, initial production 347 bbls., total depth 1,589 feet. G. P. Mitcham's No. 1 Thate, dry and abandoned, total depth 1,600 feet. Anderson and Taylor Line Oil Co.'s No. 1 Stewardson, oil sand 1,690-1,707 feet, initial production 40 bbls., total depth 1,707 feet.

Palo Pinto County

Brazos River Gas Co.'s No. 1 Crossland heirs, dry and abandoned, total depth 4,101 feet. Noble Lloyd and others' No. 1 Thompson, temporarily abandoned 580 feet. Guyer, trustee's No. 1 Jones, temporarily abandoned, total depth 825 feet. Lone Star Gas Co.'s No. 1 Hart, temporarily abandoned location. J. H. Richardson's No. 1 Sanger, temporarily abandoned, total depth 1,450 feet. Texas Royalty & Utilities Co.'s No. 1 Thomas, oil sand 1,121-35 feet, initial production 15 bbls. oil and 2 bbls. of water, total depth 1,137 feet.

NORTH TEXAS PRODUCTION

Week Ending March 14

Panhandle district—	Bbls.
Carson County	3,525
Hutchinson County	9,068
Gray County	39,650
Moore County	255
Potter County	0
Wheeler County	315
Total production this week	52,813
Total production last week	53,424
Decrease	611
Wichita Falls district—	
Archer County	11,676
Baylor County	639
Clay County	645
Cooke County	1,981
Foard County	50
Jack County	924
Haskell County	25
Montague County	3,603
Throckmorton County	323
Wilbarger County	9,885
Wichita County	19,239
Young County	12,332
Total production this week	61,322
Total production last week	64,647
Decrease	3,325
Ranger district—	
Brown County	3,685
Callahan County	1,458
Coleman County	1,502
Comanche County	682
Palo Pinto County	334
Eastland County	3,332
Shackelford County	3,938
Stephens County	4,699
Total production this week	19,630
Total production last week	19,529
Increase	101

NATIONAL OIL SCOUTS WILL MEET AT DALLAS

FORT WORTH, Tex., Mar. 16.—The executive committee of the National Oil Scouts Association, at its annual meeting at Dallas on March 14, selected Dallas for the association's annual convention May 11 and 12. W. E. Whitcomb is chairman of the executive committee, other members being J. H. Langston of the Sun Oil Co., Dallas; Hilary Hebert, Tyler; C. J. White, San Antonio; W. E. Thompson, Fort Worth; C. A. Strahan, Tyler; Everett Meaders, Wichita Falls; C. W. Wise, Eastland; Frank Jacobson, Fort Worth; J. V. Adams, San Antonio, president of the association; J. E. Beall, San Antonio, secretary-treasurer, and N. B. Larsh, San Angelo.

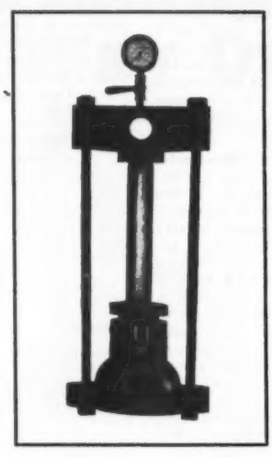
J. H. Langston and J. W. Selby of the Shell Petroleum Corp., both of Dallas, were named chairmen of the local arrangements committee. Mr. Langston is one of the oldest members of the association and is at present executive vice president. Credit for bringing the convention to Dallas goes to Mr. Langston.

The association has over 550 members. Last year's convention was held at San Antonio.

JOHN D. ROCKEFELLER'S DESK

A plain roll-top desk which John D. Rockefeller used for many years is the most prized piece of furniture in the Standard Oil Building at 26 Broadway, says the New York Times. It reposes in the sumptuous office of Walter C. Teagle, president of the Standard Oil Co. of New Jersey. The desk, tightly shut, is not used. Rather conspicuous by contrast with the more modern furniture of the office, it never fails to attract the attention of visitors, and it is always examined minutely when Mr. Teagle or a secretary reveals that it was once the property of the elder Mr. Rockefeller.

MOSER



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EAST CENTRAL TEXAS

(Continued from Page 51)

show up, but no water has appeared, and engineers are still at a loss as to the cause of this rise in temperature of the oil. Sudden rise in temperature in Fault line wells proved the nearness of salt water, and it was thought such would be the case in wells in these new areas where the temperature went far above normal, but some engineers are disposed to believe that friction alone is the cause of the temperature rising, most of the wells flowing through choke, which might easily cause friction and such temperature rises

Capps and Smith's No. 1 Cochran in the Jacob Roth Survey, several miles south of the Joiner Field, Rusk County, was abandoned this week at a total depth of 3,801 feet.

Mrs. Mamie Hammond and others' No. 1 Hamby in the Martin Lant Survey, 4 miles northwest of the Farrell-Lathrop Pool, is coring in chalk at 3,602 feet, this chalk believed to be the Austin which was said to have been topped at 3,585 feet making the test running about 80 feet lower than the Lathrop discovery well, and as proven by the Burton Drilling Co.'s No. 1 Florey extension well this week in the Kilgore Field, such a showing would not necessarily indicate a dry hole, but still gives the test a chance to make a producer and extend the field to the northeast. No test is dry in East Texas until abandoned as such now.

Production Figures

The 56 producers in the three areas produced almost 83,000 bbls. during the 24 hours ending at 7 a. m. on March 14, many of these wells flowing on choke. There are 225 wells drilling in the two counties, and many new locations were reported over the week end. Several outpost wells will be closely watched this week to note the possibilities of extensions to the fields, or the possible limiting the same.

Another meeting will be held at Tyler, Tex., the evening of March 21 to further discuss proration of the new areas in Rusk and Gregg Counties, this meeting having been called by Carl Estes, secretary of the East Texas Lease and Royalty Owners and Producers Association. This association went on record at a meeting at Henderson, March 13 against prorating these new areas unless imports from foreign countries were also curtailed.

The Magnolia Pipe Line Co. has completed work on 30 miles of its 60-mile 10-inch line from Gregg County to Center Station in Shelby County, and the Pure Oil Pipe Line Co. has completed 42 per cent of its survey for a proposed line from its Teague station in Freestone County to the Joiner and Lathrop Pools.

COMPLETIONS IN EAST CENTRAL TEXAS

Henderson County

E. L. Chapman's No. 3 Cade, dry and abandoned, total depth 5,090 feet.

Rusk County

Anderson's No. 2 Frederick, oil sand 3,591-3,640 feet, initial production 3,000 bbls., total depth 3,640 feet. Capps and Smith's No. 1 J. L. Cochrane, dry and abandoned, total depth 3,802 feet. Hamon's No. 1 W. M. Camp cored oil sand 3,530-40 feet and 3,581-88 feet, initial production 250 bbls. total depth 3,588 feet. Humble Oil & Refining Co.'s No. 3 L. D. Crim, top sand 3,690 feet, initial production 820 bbls. first two hours on 1 1/4-inch choke, total depth 3,720 feet. Same company's No. 4 L. D. Crim, top sand 3,672-3,708 feet, initial production 120 bbls. first hour on eleven-sixteenths-inch choke, total depth 3,708 feet. Same company's No. 1 B. F. Laird, oil sand 3,605-45 feet, initial production 240 bbls. the first three hours on eleven-sixteenths-inch choke, total depth 3,645 feet. Same company's No. 1-A J. N. Peterson, top sand 3,616-56 feet, initial production 355 bbls. first three hours on eleven-sixteenths-inch choke, total depth 3,656 feet. Hunt's No. 1 Mayfield-Alford, broken oil sand 3,641-61 feet, initial production 1,860 bbls., total depth 3,661 feet. Karona's No. 1 J. N. Peterson, top sand 3,599-3,616 feet, initial production 3,628 bbls., total depth 3,616 feet. Lloyd Oil Corp. and others' No. 1 Nively, dry and abandoned, total depth 3,202 feet. Magnolia Petroleum Co.'s No. 1 L. D. Crim, oil sand 3,689-3,709 feet, initial production 2,276 bbls. in 13 hours on 1-inch choke, total depth 3,715 feet. Olsen Brothers' No. 1 Brown cored oil sand 3,698-3,710 feet, initial production 4,800 bbls., total depth 3,713 feet. Pilot Oil Co.'s No. 1 A. P. Finney cored oil sand 3,610-18 feet, initial production 3,360 bbls., total depth 3,660 feet. Shaw Oil Co.'s No. 2 Ashby, oil sand 3,656-70 feet, initial production 2,240 bbls., total depth 3,670 feet. Sinclair Oil & Gas Co.'s No. 1 Holland, cored oil sand 3,627-49 feet and 3,649-68 feet, initial production 2,000 bbls., total depth 3,693 feet. Same company's No. 3 Holland, cored oil sand 3,609-13 feet, initial production 1,800 bbls., total depth 3,645 feet. Warner-Quinlan's No. 1 Camp cored oil sand 3,602-06 feet, initial production 1,900 bbls., total depth 3,658 feet.

Van Zandt County

Pure Oil Co.'s No. 9 Clark, initial production 108 bbls., total depth 2,916 feet on eleven-sixteenths-inch choke. Same company's No. 12 Wells, initial production 135 bbls., total depth 2,957 feet on eleven-sixteenths-inch choke. Same company's No. 4 Swain, initial production 120 bbls., total depth 2,951 feet on eleven-sixteenths-inch choke. Same company's No. 1 Enas, initial production 100 bbls., total depth 2,940 feet on eleven-sixteenths-inch choke. Whitmore Oil & Gas Co.'s No. 1 R. W. Beggs, dry and abandoned, total depth 3,512 feet. Wilson and others' (Van Zandt Petroleum Co.) No. 1 M. B. Fisher, dry and abandoned, total depth 2,032 feet. Vitek Oil Co.'s No. 1 L. A. Smith, location temporarily abandoned.

CARE IS NEEDED IN DRILLING EAST TEXAS

(Continued from Page 23)

to the promoter who is not looking at his venture as a permanent investment. And there is always that chance that he may secure a particularly good block of ground and be able to sell out to one of the major companies for a very considerable sum.

The whole condition is deplorable for it is causing uncertainty in the whole industry and a general lowering of prices for crude oil that will make it almost impossible for the owners of average wells in most other fields to continue to operate them without suffering a considerable loss. If these old wells are forced to shut down and the industry reverts to depending upon the oil to be secured from flush fields only, it is going to work hardship upon thousands of oil field workers and lead to such a readjustment in the industry that it is doubtful as to the ultimate outcome.

The unfortunate part of it all is that all of this is known to executives and others engaged in the oil industry and they are powerless to stop the practice and are forced in self-defense to join in some of these flush field drilling campaigns against their desires or inclinations.

State laws that would make it possible to restrict drilling campaigns of the kind now under way in East Texas are necessary. Past experences have shown that the actual profit that accrues to the smaller investors in such operations are small and even the major companies cannot hope to make satisfactory earnings on such investments and the whole industry is therefore burdened quite unnecessarily.

GULF'S RIVER TERMINAL

PITTSBURGH, Pa., Mar. 16.—The Gulf Refining Co. of Pittsburgh is asking federal permission to construct a floating dock in the Ohio River just below the mouth of the Little Kanawha River, near Parkersburg. At the same time permission is asked to install three oil pipe lines to transfer oil from barges. The dock is to be of the floating type 50 feet long and 25 feet in width. To permit the landing of barges at this port it will be necessary to dredge approximately 3,400 cubic yards of material.

GOVERNORS' COMMITTEE ADVISES VERY WISELY

(Continued from Page 22)

various state conservation agencies, said committee serving to contact these agencies, for the purpose of providing fair allotments of production allowables, as between the various states, with due regard for the various conditions affecting production in those states;

10. That when allocations shall have been made to the various states by said Oil States Advisory Committee, as hereinabove provided, the conservation authorities of said states, each and severally, shall proceed to allocate and distribute, as between the various fields of said states, the market available for the crude oil produced, with due regard for ratable takings as between all producers in a given field and with due regard for preventing any unfair or unreasonable discrimination between various fields;

11. That in all of such allocations, as between producers and as between fields, due regard shall be given to the necessities of the so-called marginal or small producers—those wells which are in danger of abandonment if production or price is curtailed too far—striving in all reasonable manner to preserve and continue the life of all such small wells and fields so that they may produce the amounts of oil consistent with preventing waste therein;

12. That proration be immediately extended by the conservation authorities of Texas to the new East Texas fields, which are now threatening to destroy the entire crude market, providing for those fields fair and reasonable markets and prices consistent with the production of the rest of the country; and that in all new areas of flush production, in whatever state, proration measures be fairly applied from the beginning of the development of said fields;

Prevent Overdrilling

13. That measures be taken in all of the oil-producing states to prevent the overdrilling and wasteful production of oil and gas in those areas of new production which may be developed, holding the amount of drilling to such number of wells as may reasonably seem likely to produce said oil most economically and efficiently; and also to save and preserve the gas energy of said fields; and further to encourage the idea of operators who own tracts of land, too small to support wells individually, entering into partnerships creating blocks of sufficient size that they may reasonably and economically support a well or wells, thereby reducing and preventing both physical and economic wastes due to too close drilling; and that we further go on record, as favoring wherever possible and feasible, the principle of unit operations as providing the fairest and most economical possible way of producing oil and as not only effecting great savings in operations but far greater recoveries of oil and as well as rates of withdrawal that will prevent flooding the markets with new flush oil supplies that cannot readily be absorbed.

Curtail Imports

14. That in all of the foregoing measures, it be borne in mind that it is necessary not only to prorate and curtail production of oil within the United States but to prorate and curtail the imports of foreign crude oil and petroleum products with due consideration for the preservation of the American markets; and furthermore that to prevent such importations as may hereafter arise from other countries like Russia and Rumania, effective measures should be provided by the Congress of the United States to prevent dumping of oil and oil products on the United States market.

15. That if the plan of agreements herein suggested for the immediate and fair curtailment of oil imports shall fail of its purpose, then we recommend that the legislatures of the various oil states enact legislation which will have the effect of preventing importers from bringing in foreign oil to the hurt and injury of United States producers.

16. That this committee fully recognizes that for the benefit of the consuming public fair and reasonable prices to the public must be maintained on gasoline and other petroleum products, and that to this end published recommendations be made from time to time by this committee as to what constitute fair and reasonable prices for gasoline and other petroleum products with relation to the prevailing prices for crude oil.

17. That this committee recommends discouragement of any increases in the gasoline taxes imposed by the various states, which taxes in all cases are paid by the consuming public as part of the price of gasoline at the filling station, and that all of the states, by proper legislation, increase the efficiency of the collection of those taxes as now imposed, so as to prevent evasions by unscrupulous concerns.

18. That this committee recommends that the oil industry of the United States, through the means herein suggested and through other means which may become apparent from time to time, set unto itself the goal of so conducting its business as to control and prevent the too rapid and reckless production of oil and to assure fair prices to producers at all times—for in any conservation of oil and gas the factor of price is not less important than that of curtailment; it being the feeling of this committee that if the oil industry will avoid a long period of distress and ruin to many thousands of operators, both large and small, all branches of the industry must co-operate through every means available not only to assure fair prices and reasonable supplies of oil and its products, but to prevent unreasonable and monopolistic prices in the future.

19. That this committee urges and requests those purchasing companies which have recently reduced prices of crude oil to restore those prices immediately to February levels, pending the working out by the various states of such measures as are recommended herein, looking to immediate betterment of prices thereafter.

20. This committee finally recommends, in order to make permanent the foregoing program dealing with the oil industry in general, that the oil-producing states here represented and which may hereafter join in this committee, enter into an interstate compact, the terms of which shall be agreed upon by this committee at some future meeting, such interstate compact to be only obligatory upon those states giving legislative sanction thereto, and also subject to the consent of the Congress of the United States.

(Signed)

Cicero I. Murray, chairman, Oklahoma City, Okla.; W. H. Cooley, Bakersfield, Calif.; Mark D. Mitchell, Independence, Kans.; Carl M. Cox, Cheyenne, Wyo.; W. Scott Heywood, Jennings, La.; T. H. Barton, El Dorado, Ark.; Robert R. Penn, Dallas, Tex.

GREGG COUNTY LEASE BRINGS HIGH FIGURE

TYLER, Tex., Mar. 14.—Sale of 2,500 acres around the Lathrop well in Gregg County, together with a half interest in the well and the 96-acre tract on which it is located, to the Yount-Lee interest for $3,270,000 was announced here today by Gaylord H. Chizum of Fort Worth, attorney for J. E. Farrell, W. A. Mercrief, W. S. Noble, R. S. Baker and E. A. Showers, the owners.

Chizum said that $1,270,000 would be paid in cash and the remainder from one-fourth of the oil as produced. The well is now flowing about 5,000 bbls. daily under choke.

COLON CORP. WELL

Colon Oil Corp.'s subsidiary in Venezuela reports well No. T-75 brought in producing 835 bbls. per day through seven-eighths-inch flow plug, casing pressure 100 pounds. No. T-43, after deepening, was brought in producing 1,230 bbls. per day through 1-inch flow plug, casing pressure 140 pounds, tubing pressure 105 pounds. Production for the week ending March 6 was 179,618 bbls.

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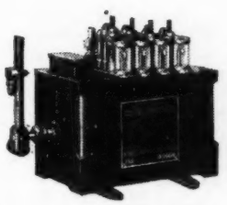

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EAST CENTRAL TEXAS WILDCATS

(Continued from Page 51)

D. H. Byrd and Gulf Prod. Co.'s No. 1 Canimaras Bros. 5,505 ft. from NW, 1,528 ft. from NE of 817.6-ac. tract, 1,320 ft. from N, 2,505 ft. from W of survey, Harden Edwards A-64 Sur. ..... Rig up and shut down.

Daisy Oil Co.'s No. 1 Mrs. H. B. Ware, 1,000 varas from N and 350 ft. from W of survey, Avery B. Johnson Sur. ..... Derrick.

East Texas Refining Co. et al's No. 1 Fisher, 200 ft. N and 200 ft. W of E 98-ac. tract, John Ruddle Sur. ..... Init. prod. 110 bbls. first hr., T. D. 3,542 ft.

East Texas Ref. Co. et al's No. 1 B. Rodden, 200 ft. from N, 200 ft. from E of 32-ac. lease, 3,700 ft. from W, 6,400 ft. from N, William Robinson Sur..... Init. prod. 208 bbls. first hr.; waiting on pipe line connections; T. D. 3,592 ft.

Eslick's No. 1 Church Lot, 150 ft. N and 150 ft. W of N 15 acres, Dolores Sanches Sur. ..... Oil sand 3,600-06 ft.

Eslick and Little's No. 1 W. R. Nicholson, 1,205 ft. from E and 150 ft. from S of 1,094-ac. tract, Marsh Mann Sur. ..... Rig.

D. H. Felder's No. 1 Elder (Trip), 200 ft. N and 200 ft. W of Elder tract, J. W. McCorry Sur. ..... Cored to 3,579 ft.; no show.

M. S. Hammond's No. 1 J. M. Hamby, 278 ft. from E line, 1,667 ft. S of Hamby 3,800-ac. tract, Martin Lant Sur. ..... Cored 3,579-84 ft.

Hickman and Baird's No. 1 Maude Smith, 160 ft. from N and 160 ft. from E of 35-ac. tract, 3,200 ft. from W and 2,650 ft. from N of survey, Isaac C. Skillern Sur. ..... Drlg. 2,520 ft.

Hurburt and Brown's No. 1 L. L. Mackey, 990 ft. from E and 990 ft. from S of 269-ac. tract, 1,000 ft. from W and 990 ft. from S of survey, G. Y. Chambers Sur. ..... Rig up.

Hurburt and Brown's No. 1 A. J. Page, 1,670 ft. S and 2,080 ft. E of SW cor. of Ed Robinson Sur., James Dixon Sur. ..... Base Pecan Gap 3,064 ft.; fishing 3,550 ft.

Lewis Prod. Co.'s No. 1 D. M. Peterson, 150 ft. from S and 150 ft. from W of survey, G. S. Carthews Sur. ..... Rig up.

Leonard Pet. Co.'s No. 1 W. E. Pryor, 200 ft. from S and 200 ft. from W of 152-ac. tract, 2,600 ft. from E and 2,350 ft. from N of survey, Hamilton McNutt Sur. ..... Derrick.

Lloyd Oil Corp.'s No. 1 S. G. Andrews, 150 ft. from S. 330 ft. from W of NW 50-ac. tract, 2 miles NW of Kilgore, W. M. P. Hyde Sur. ..... Top Pecan Gap 2,565 ft.; base 3,054 ft.; show oil 3,640-49 ft.; to run csg.

Magnolia Pet. Co.'s No. 1 Ben Laird, 150 ft. from E and 150 ft. from S of survey, Isaac Ruddle Sur. .. Rig up.

Magnolia Pet. Co.'s No. 1 B. Rodden, 200 ft. from N and 200 ft. from W of 42-ac. lease, 4,200 ft. from W and 6,200 ft. from N of survey, William Robinson Sur. ..... Set 6⅝-in. csg. 3,595 ft.

Magnolia Pet. Co.'s No. 2 B. Rodden, 500 ft. NE and 200 ft. SE of NW cor. of 42-ac. lease, William Robinson Sur. ..... Shut down 2,925 ft.

Marine Oil Co.'s No. 1 Art Mitchell, 150 ft. from E and 150 ft. from S of lease, 1,050 ft. from E and 800 ft. from S of survey, John S. Carithers Sur..... Drlg. 3,508 ft.

George McCamey et al's No. 1 J. F. Richards, 150 ft. from N and 150 ft. from W of 50-ac. tract, Mary Van Winkle Sur. ..... Coring ahead 3,554 ft.

Merren-Van Horn et al's No. 1 Maude Smith, 150 ft. from S, 150 ft. from W of 35-ac. tract and 10-ac. lease, 2,400 ft. from W and 2,800 ft. from N, Isaac C. Shelborn Sur. ..... Coring 3,491 ft.

Navarro Oil Co.'s No. 1 G. B. Tenery, 167 ft. from N and 150 ft. from W of farm and 10-ac. lease, 5,000 ft. from W and 4,550 ft. from N of survey, William Robinson Sur. ..... Set csg. 3,570 ft.; T. D. 3,590 ft.

Phares and Sample's No. 1 Maude Smith, 4,800 ft. from W and 1,400 ft. from N of survey, Isaac Skillern Sur. ..... Derrick pattern.

W. G. Ray Drlg. Co.'s No. 1 Maude Smith, 150 ft. from N and 150 ft. from W of tract, 1,200 ft. from W and 1,400 ft. from S of survey ..... Drlg. 2,600 ft.

Foy Roberts et al's No. 1 L. M. Colburn, 150 ft. from E and 150 ft. from S of 45-ac. lease, 5,700 ft. from E and 850 ft. from N of survey, Henry Hathaway Sur. ..... Location.

C. Rosenfield et al's No. 1 J. A. Knowles, 700 ft. from E, 1,250 ft. from N, William Lyles Sur. ..... Rig up.

Jim Rusk et al's No. 1 G. B. Tenery, 110 ft. from N and 110 ft. from W of 10-ac. lease, 5,050 ft. from W and 49,010 ft. from N of survey, William Robinson Sur. ..... Surface pipe; drlg. plug 105 ft.

Selby Oil & Gas Co.'s No. 1 P. J. Snarley, 200 ft. from N and 200 ft. from E of survey, William Lyndale Sur. ..... T. D. 1,450 ft.

Shell Pet. Corp.'s No. 1 J. D. Davis, 2,350 ft. from W and 4,100 ft. from N of survey, William Robinson Sur. ..... Spudding.

B. A. Skipper Oil Co.'s No. 1 Thad Snoddy, 150 ft. from N and 1,368 ft. from E of survey, W. H. Castleberry Sur. ..... Location.

Simms and Stanolind Oil Co.'s No. 1 G. B. Tenery, 150 ft. from N and 150 ft. from W of 10-ac. lease, William Robinson Sur. ..... T. D. 650 ft.

Smith Ref. Co.'s No. 1 J. A. Knowles, 150 ft. from S. 150 ft. from NW of 75-ac. tract, 5,200 ft. from W, 7,700 ft. from N, Mary Van Winkle Sur. ..... Derrick.

Sultan Oil Co.'s No. 1 J. F. Spangler, 330 ft. from E and 300 ft. from S of NE of 160-ac. tract, 2,600 ft. from E and 1,500 ft. from S of survey, G. W. Hooper Sur. ..... Drlg. 3,118 ft.

Tidal Oil Co.'s No. 1 F. K. Lathrop, 6,400 ft. from W and 5,650 ft. from N of survey, William Robinson Sur. ..... Building derrick.

Paul Vitek et al's No. 1 Louise Osborne, 150 ft. from E. 150 ft. from S of W 46-ac. of 84-ac. tract, 2,000 ft. from W, 450 ft. from S, R. R. Bobbett Sur. ..... Derrick pattern.

Werbey and McMinn's No. 1 Solon King, 1,400 ft. from E and 3,300 ft. from S of survey, W. P. Chisum Sur. ..... Rig up.

Youngblood, trustee's No. 1 W. N. Lamp, 300 ft. from S and E of most northern NW cor. of tract, 5,800 ft. from W, 1,500 ft. from N, David Ferguson Sur.... Derrick pattern.

HUNT COUNTY

Mamie S. Hammond's No. 1 W. H. Adams, center of survey, W of Branson Sur., J. A. McFarland Sur. ..... Derrick blew down.

LAMAR COUNTY

Everett & Allen's No. 1 Guest, 250 ft. S and 2,046 ft. E of 100-ac. tract, L. Roberts Sur. ..... Shut down 1,829 ft. for fuel.

RAINS COUNTY

Westbrook Oil Co.'s No. 1 William Cates, 150 ft. N and W of NW cor. of E. S. Knight 46-ac. tract and on Cates 266-ac. tract, Calvin Gage Sur. ..... Rig up.

RED RIVER COUNTY

Everett & Allen's No. 1 Bryan, 1,200 ft. SW of NE cor. of Bryan 130 acres, P. Vaughn Sur. ..... Location.

Droppleman and Bunely's No. 1 J. W. Cunningham, 250 ft. E and 250 ft. S of 180-ac. tract, S. B. Shi Sur. ..... Reaming hole to make drill stem test.

Everett & Allen's No. 1 E. Howison, 225 ft. S, 185 ft. W of 79-ac. tract, William Humphreys Sur. ..... Derrick.

KILGORE AREA—RUSK COUNTY

H. L. Blackstock's No. 1 W. R. Brightwell, 150 ft. from N and 150 ft. from E of 100-ac. tract and 10-ac. lease, Robert E. Winn Sur. ..... Drlg. 2,200 ft.

H. L. Blackstock's No. 2 W. R. Brightwell, 150 ft. from E and 150 ft. from S of lease, Robert E. Winn Sur. ..... Rig up.

Burton Drlg. Co.'s No. 1 Florey, 2,250 ft. from N, 150 ft. from W of SE cor., Peter Holmes Sur. ..... Drlg. plug.; connecting up tankage.

Burton Drlg. Co.'s No. 1 George Thompson, 150 ft. from N, 150 ft. from E of W 20 acres of 70-ac. tract, 1,600 ft. from E, 2,200 ft. from N, Robert E. Winn Sur. ..... Coring ahead 3,637 ft.

Cordova Union Oil & Land Co.'s No. 1 C. O. Christian, 150 ft. from N, 171 ft. from W of Christiana 36-ac. tract, Robert E. Winn Sur. ..... Shut down; no market for oil; T. D. 3,705 ft.

Cordova Union Oil Co.'s No. 2 C. O. Christian, 150 ft. from E and 150 ft. from S of lease and tract, Robert E. Winn Sur. ..... Rig up.

Cordova Union Oil Co.'s No. 3 C. O. Christian, 2,200 ft. from E line and 1,450 ft. from N line of survey, Robert E. Winn Sur. ..... Rig up.

Cordova Union Oil Co.'s No. 4 C. O. Christian, 750 ft. from S and 150 ft. from W of lease and tract, Robert E. Winn Sur. ..... Rig up.

Cordova Union Oil Co.'s No. 5 C. O. Christian, 2,100 ft. from W and 1,700 ft. from N of survey, Robert E. Winn Sur. ..... Building derrick.

Cox and Hamon's No. 1 D. M. Peterson, 150 ft. from SE and NE lines of 41-ac. lease, 2,700 ft. from E and 3,350 ft. from N of survey, Isaac Ruddle Sur. ... Drlg. 3,096 ft.

Cox and Hamon's No. 2 D. M. Peterson, 150 ft. from the N and E lines of 40-ac. tract, Isaac Ruddle Sur. ..... Location.

Cox and Hamon's No. 3 D. M. Peterson, 150 ft. from N and W lines of 40-ac. tract, Isaac Ruddle Sur. .... Location.

Cranfill & Reynolds' No. 1 George Thompson, 2,150 ft. from W and 2,100 ft. from N line of survey, Robert E. Winn Sur. ..... Location.

Curtis and Loe's No. 1 J. S. Bean, 1,650 ft. from S. 200 ft. E of NW cor. of 314-ac. tract and lease, 4,925 ft. from S, 1,075 ft. from W, J. Lewis Sur. .. Set 148 ft. of 10-in.

Elsy Drlg. Co.'s No. 1 J. M. Brightwell, 150 ft. from N, 150 ft. from E of 30-ac. tract, 1,150 ft. from E, 150 ft. from N, Robert W. Smith Sur. ..... Set 144 ft. of 10-in. csg.

Elsy Drlg. Co.'s No. 1 George Thompson, 150 ft. from N, 150 ft. from E of tract of 70 acres and 10-ac. lease, 400 ft. S, 500 ft. W, Henry Dobson Sur. ..... Rig up.

A. R. Erwin's No. 1 J. N. Peterson, 150 ft. from S and 150 ft. from E line of 41.65-ac. tract, Isaac Ruddle Sur. ..... Location.

Federated Oil Co.'s No. 1 Laird, 150 ft. from S. 1,221 ft. from W of Laird 55-ac. tract, Isaac Ruddle Sur... Flowed 208 bbls. first hour; shut in; T. D. 3,654 ft.

Federated Oil Co.'s No. 2 Ben Laird, 200 ft. from the N and E lines of lease, Isaac Ruddle Sur. ..... Rigging up.

Heep Oil Co.'s No. 1 J. E. Bean, 3,100 ft. from N line and 150 ft. from W line of survey, J. Lewis Sur. .... Derrick.

Horseshoe Syndicate's No. 1 W. P. Brightwell, 150 ft. from N line and 150 ft. from W line of tract, Robert E. Winn Sur. ..... Derrick.

Houston Oil Co.'s No. 1 L. D. Crim, 160 ft. from E line and 200 ft. from N line of survey, Robert E. Wian Sur. ..... Derrick and rigging up.

Houston Oil Co.'s No. 2 L. D. Crim, 150 ft. from N line and 300 ft. from E line of tract, Henry Hobson Sur. ..... Location.

Humble Oil & Refining Co.'s No. 5 Della Crim, 3,120 ft. W, 150 ft. N of SE cor., E. G. Sevier Sur. ..... Set 6⅝-in. csg. 3,654 ft.

Humble Oil & Refining Co.'s No. 8 L. D. Crim, 4,468 ft. from E and 150 ft. from S of survey, E. G. Sevier Sur. ..... Derrick.

Humble Oil & Refining Co.'s No. 9 L. D. Crim, 2,128 ft. from E and 150 ft. from S of survey, E. G. Sevier Sur. ..... Drlg. 2,807 ft.

Humble Oil & Refining Co.'s No. 10 L. D. Crim, 931 ft. from E and 200 ft. from S of L. D. Crim 628-ac. tract, E. G. Sevier Sur. ..... Rig up.

Humble Oil & Refining Co.'s No. 11 L. D. Crim, 585 ft. from E and 200 ft. from S of L. D. Crim 628-ac. tract, E. G. Sevier Sur. ..... Rig up.

Humble Oil & Refining Co.'s No. 12 L. D. Crimm, 150 ft. from E and 150 ft. from S of survey, E. G. Sevier Sur. ..... Location.

Humble Oil & Refining Co.'s No. 1 S. S. Laird, 3,692 ft. from S and 150 ft. from E line of survey and 230-ac. tract, Isaac Ruddle Sur. ..... Location.

Humble Oil & Refining Co.'s No. 2 S. S. Laird, 2,250 ft. from E line and 4,625 ft. from N line of survey, Isaac Ruddle Sur. ..... Location.

Humble Oil & Refining Co.'s No. 2 B. F. Laird, 450 ft. from the S line and 1,850 ft. from W line of survey, Isaac Ruddle Sur. ..... Derrick.

Humble Oil & Refining Co.'s No. 4 J. N. Peterson, 271 ft. W of NE cor. of 63-ac. tract, and 200 ft. S of N line of 63-ac. tract, Isaac Ruddle Sur. ..... Derrick.

Humble Oil & Refining Co.'s No. 3 Peterson, 120 ft. from E and 120 ft. from W, being 740 ft. N and 29° W of Peterson No. 1-B, 12-ac. tract, Isaac Ruddle Sur. ..... Location.

Humble Oil & Refining Co.'s No. 4 J. N. Peterson, 200 ft. S and 271 ft. W of NE cor. of Peterson 63-ac. tract, Isaac Ruddle Sur. ..... Drlg. 1,961 ft.

Humble Oil & Refining Co.'s No. 5 J. N. Peterson, 4,100 ft. from N line and 3,450 ft. from E line of survey, Isaac Ruddle Sur. ..... Derrick.

E. M. Jones et al's No. 1-A D. M. Peterson, 150 ft. from SW and SE lines of 206-ac. tract and 10-ac. lease, 3,600 ft. from W, 3,800 ft. from S, Isaac Ruddle Sur... Rig up.

E. M. Jones and Houston Oil Co.'s No. 1 W. R. Crim, 150 ft. from N and 150 ft. from E of 10-ac. lease, Robert E. Winn Sur. ..... Drlg. 2,810 ft.

Karona's No. 2 J. N. Peterson, 150 ft. from N line and 150 ft. from E line of tract, Robert E. Winn Sur. ... Building derrick.

La-Tex Gas Co.'s No. 1 Major Kennedy, 333 ft. from W of survey and 166 ft. from S line of Kennedy 100-ac. tract, Daniel Clark Sur. ..... Fishing 36 joints drill pipe; T. D. 3,030 ft.

Luling Oil & Gas Co.'s No. 1 Brightwell, 150 ft. from N, 150 ft. from W, Robert E. Winn Sur. ..... Drlg. plug; connecting up.

Magnolia Pet. Co.'s No. 5 W. R. Crim, 150 ft. from S line and 550 ft. from E line of the 50-ac. lease, Robert E. Winn Sur. ..... Building derrick.

Marine Oil Co.'s No. 1 Nat Beason, 150 ft. from S and 150 ft. from W lines of tract, Isaac Ruddle Sur. .... Derrick.

Marine Oil Co.'s No. 2 Nat Beason, 150 ft. from W line and 150 ft. from N line of tract, Isaac Ruddle Sur. ..... Building derrick.

Markham and Dunning's No. 1 W. R. Crim, 150 ft. from N and 150 ft. from W of 25-ac. lease, Robert E. Winn Sur. ..... Derrick.

Navarro Oil Co.'s No. 1 R. W. Brightwell, 200 ft. from N and 200 ft. from W lines of E 50 acres of 100-ac. farm, Robert E. Winn Sur. ..... Derrick.
H. V. Oliver and Brown Drlg. Co.'s No. 1 B. F. Hindman, 150 ft. from N, 150 ft. from E of 5-ac. tract, 850 ft. from E, 3,150 ft. from N, Robert Smith Sur. .. Derrick.
John W. Olvey's No. 2 W. R. Crim, 150 ft. from N and 150 ft. from E of tract, Robert E. Winn Sur. ..... Spudding.
Jim Pollard's No. 1 Ladd, 150 ft. from N and W of 2½-ac. tract and survey, Henry Hobson Sur. ..... Location.
Smith and Gulf Prod. Co.'s No. 1 D. M. Peterson, 330 ft. from S and 330 ft. from W line of 92.08-ac. tract, Isaac Ruddle Sur. ..... Location.
Smith and Gulf Prod. Co.'s No. 2 D. M. Peterson, 150 ft. from S and 150 ft. from E lines of 92.08-ac. tract, Isaac Ruddle Sur. ..... Derrick.
Snowden and McSweeney's No. 1 Ben Laird, 179 ft. from E and 100 ft. from S lines of 143-ac. tract, Isaac Ruddle Sur. ..... Building derrick.
Snowden and McSweeney's No. 2 Ben Laird, 150 ft. from E and 150 ft. from N of 143-ac. tract, Isaac Ruddle Sur. ..... Location.
Warner-Quinlan's No. 1 S. S. Laird, 150 ft. from N line and 150 ft. from W line of tract, Isaac Ruddle Sur. ..... Location.
Woodley Pet. Corp.'s No. 2 D. M. Peterson, 150 ft. from S line and 150 ft. from W line of 20-ac. tract, Isaac Ruddle Sur. ..... Location.

JOINER POOL—RUSK COUNTY

Alford et al's No. 1 W. L. Thrash, 1,103 ft. from N, 420 ft. from E of SE cor., B. Smith Sur. ..... Derrick.
Andrade et al's No. 1 Thrash, 520 ft. from E, 2,100 ft. from S of 78-ac. tract (J. Goodwin on map), M. J. Prue Sur. ..... Derrick.
Andrade et al's No. 2 Thrash, 520 ft. from E, 1,855 ft. from S of 78-ac. tract, M. J. Prue Sur. ..... Building derrick.
Andrade et al's No. 3 Thrash, 845 ft. from E, 1,775 ft. from S of 78-ac. tract, M. J. Prue Sur. ..... Derrick pattern.
Anderson's No. 1 Thompson, 150 ft. from N, 150 ft. from E, M. J. Prue Sur. ..... Cored shale 3,685 ft.; crooked hole.
G. S. Anderson's No. 1 Jobe, 150 ft. out of NW cor. of W 25 acres, Jobe tract, Juan Ximenes Sur. ..... Drlg. 3,175 ft.
G. S. Anderson's No. 2 Jobe, 150 ft. from N and 150 ft. from E of W 25-ac. tract, Juan Ximenes Sur. .... Rig up.
Babcock Bros.' No. 1 Camp, 150 ft. from N, 171 ft. from E of 4-ac. tract, Juan Ximenes Sur. ..... Drlg. 3,310 ft.
Bahan's No. 1 W. M. Camp, 150 ft. from N, 150 ft. from W of 25-ac. tract, Juan Ximenes Sur. ..... Building derrick.
Ball and Malone's No. 2 Bradford, 6,100 ft. from S line and 225 ft. from W line of survey, Juan Ximenes Sur. ..... Drlg. 1,600 ft.
L. W. Calendar's No. 1 Alford, 446 ft. E and 393 ft. S of SW cor. of T. J. Moore Sur., I. G. Parker Sur. ..... Set 211 ft. 10-in.; waiting on csg.
R. I. Carter's No. 1 A. Thrash, 2,650 ft. from E and 6,250 ft. from S of survey, M. J. Prue Sur. ..... Rig up.
Consolidated Oil Co.'s No. 1 William Jobe, 150 ft. from N, 450 ft. from W of lease, S offset to Anderson's No. 1 Fredericks, Juan Ximenes Sur. ..... Set 6⅝-in. csg. 3,565 ft.
Consolidated Oil Co.'s No. 2 Jobe, 3,800 ft. from W and 3,160 ft. from N of survey, Juan Ximenes Sur. ..... Drlg. 2,750 ft.
Consolidated Oil Co.'s No. 3 Jobe, 4,500 ft. from W and 3,160 ft. from N of survey, Juan Ximenes Sur. ..... Drlg. 1,425 ft.
Consolidated Oil Co.'s No. 4 Jobe, 5,025 ft. from W and 3,160 ft. from N of survey, Juan Ximenes Sur. .. ... Rig up.
Consolidated Oil Co.'s No. 5 Jobe, 243 ft. from S and 1,970 ft. from W of lease, 5,600 ft. from W and 3,160 ft. from N of survey, Juan Ximenes Sur. ..... Rig up.
Consolidated Oil Co.'s No. 2 W. M. Camp, 150 ft. from N, 880 ft. from W of Camp 30-ac. tract, S offset to Foster's No. 1 Camp, Juan Ximenes Sur. ..... Set 6⅝-in. csg. 360 ft.
E. L. Chapman's No. 1 A. P. Finney, 150 ft. from W of E 20 acres of 102-ac. tract, Isaac G. Parker Sur. .... Derrick.
Cranfill & Reynolds' No. 1 Calvin Young, 275 ft. from E, 1,780 ft. from S of Young 300-ac. tract, M. J. Prue Sur. ..... Reaming 2,950 ft.
Dave & Bill Oil Co.'s No. 1 Calvin Young, 150 ft. from E, 1,485 ft. from S of Young tract, N of Lide's No. 1 Young, M. J. Prue Sur. ..... Drlg. 3,588 ft.; base Pecan Gap 3,078 ft.
George Demonstrend's No. 1 J. A. Bridwell, 150 ft. N, 150 ft. E of Bridwell E 73-ac. tract, M. J. Prue Sur... Drlg. 2,900 ft.; top Pecan Gap 2,667 ft.
Dan Dillon et al's No. 1 W. H. Frederick (Jake), 150 ft. from E, 150 ft. from S of 50-ac. tract, Juan Ximenes Sur. ..... Derrick.
East Texas Oil Co.'s No. 1 C. D. Ashby, 856 ft. N, 1,774 ft. from W of Ashby 119-ac. tract, Juan Ximenes Sur. ..... Drlg. 2,050 ft.
East Texas Ref. Co.'s No. 1 C. C. Giles, 502 ft. from E, 300 ft. from S of 79-ac. tract in M. J. Prue Sur. .... Drlg. 3,568 ft.; top Pecan Gap 2,730 ft.; base 3,080 ft.
Elsy Drlg. Co.'s No. 1 W. M. Camp, 150 ft. from N, 171 ft. from E of Camp 38-ac. tract, Juan Ximenes Sur. ..... Drlg. 3,375 ft.
Federated Oil Co.'s No. 2 Mayfield-Alford, 200 ft. from E, 200 ft. from S of lease on 105-ac. farm, 5,650 ft. from N and 2,600 ft. from W, Juan Ximenes Sur... Waiting on csg. 3,501 ft.
Federated Oil Co.'s No. 1 Camp, 150 ft. from S and 150 ft. from W of Camp 61-ac. farm, Juan Ximenes Sur. ..... Drlg. 3,120 ft.
Federated Oil Co.'s No. 2 Camp, 150 ft. from E and 150 ft. from S of 15-ac. lease, Juan Ximenes Sur. .. Drlg. 3,015 ft.
Foster and Deep Rock Oil Co.'s No. 1 Holland, 760 ft. from W and 4,760 ft. from N of survey, Juan Ximenes Sur. ..... Derrick.
Foster and Deep Rock Oil Co.'s No. 2 Ashby, 150 ft. W, 45 ft. S of Aiken & Rayzor's No. 1 Ashby, Juan Ximenes Sur. ..... Drlg. 3,615 ft.
Foster and Deep Rock Oil Co.'s No. 3 Camp, 150 ft. from N and 150 ft. from E of lease, 300 ft. NE of No. 1, Juan Ximenes Sur. ..... Drlg. 2,830 ft.
Frank Foster and Little's No. 1 Mayfield-Alford, 150 ft. from N and 150 ft. from W of 45-ac. lease, Juan Ximenes Sur. ..... Drlg. 1,340 ft.
Frank Foster and Little's No. 2 Mayfield-Alford, 150 ft. from N and 150 ft. from E of 4.5-ac. lease, Juan Ximenes Sur. ..... Drlg. 550 ft.
Foster and Deep Rock Oil Co.'s No. 3 Ashby, 150 ft. from S, 200 ft. from W of lease, Juan Ximenes Sur... Drlg. 3,020 ft.
Foster & Kolp's No. 2 Mayfield-Alford, 150 ft. from E, 150 ft. from S of lease, about 1,300 ft. from W line and 150 ft. from S line of Mayfield-Alford 105-ac. tract, Juan Ximenes Sur. ..... Standardizing 3,590 ft.
Greely and Baker's No. 1 Thrash, 2,600 ft. from W and 1,850 ft. from N of survey, Juan Ximenes Sur. ..... Rig up.
Haynes Drlg. Co.'s No. 3 Brown, 150 ft. from S, 150 ft. from W of lease, M. J. Prue Sur., Juan Ximenes Sur. ..... Drlg. 2,750 ft.
Haynes Drlg. Co.'s No. 4 Brown, 150 ft. from N, 150 ft. from W, M. J. Prue Sur. ..... Cored 3,656 ft.
Hefflin et al's No. 1 Thrash, 150 ft. from S, 150 ft. from W of 78-ac. tract, M. J. Prue Sur. ..... Fishing 3,568 ft.
Humble Oil & Refining Co.'s No. 1 Kangerga, 3,160 ft. from E line and 4,600 ft. from N line of survey, M. J. Prue Sur. ..... Derrick.
Humble Oil & Refining Co.'s No. 2 Kangerga, 4,400 ft. from S and 6,900 ft. from S of survey, M. J. Prue Sur. ..... Derrick.
H. L. Hunt's No. 1 Camp, 4,625 ft. from W and 3,880 ft. from N of survey, Juan Ximenes Sur. ..... Drlg. 3,205 ft.
Hunt's No. 2 Bradford, 1,320 ft. from E, 150 ft. from S of Blk. No. 12, Juan Ximenes Sur. ..... Will standardize and drill deeper; T. D. 3,583 ft.
H. L. Hunt's No. 5 Ashby, 5,500 ft. from W and 8,900 ft. from S of survey, Juan Ximenes Sur. ..... Drlg. 3,505 ft.
Jones Drlg. Co.'s No. 1 Thrash, 660 ft. from N, 154 ft. from S of SE cor. of J. T. Brown 76.93-ac. tract, 600 ft. from S and 3,200 ft. from E of survey, M. J. Prue Sur. ..... Set 170 ft. 12½-in. csg.
K. & M. Oil Co.'s No. 1 Lum Taliaferro, 150 ft. from N and 1,092 ft. of Taliaferro 52-ac. tract, Juan Ximenes Sur. ..... Drlg. 1,285 ft.
E. C. Laster's No. 1 Daisy Bradford, 150 ft. from E, 150 ft. from S of Lot 14, Juan Ximenes Sur. ..... Waiting on csg. 3,487 ft.
E. C. Laster et al's No. 1 B. B. Gray, 1,650 ft. N, 3,425 ft. from E of B. B. Gray 228.25-ac. tract, McLain Sur. ..... Waiting on csg. 3,487 ft.
Lide-Rowe Oil Co.'s No. 1 Calvin Young, 150 ft. from E, 2,690 ft. from S of Young 393-ac. farm, M. J. Prue Sur. ..... Drlg. 1,730 ft.
Peter Lively et al's No. 1 Cox, 200 ft. N and 155 ft. W of SW cor. of T. L. Moore Sur., R. H. Pinney Sur. ..... Rig up.
Luling Oil & Gas Co.'s No. 1 Frederick, 4,300 ft. from W and 1,425 ft. from N of survey, Juan Ximenes Sur. ..... Derrick.
John Mabee's No. 1 A. Thrash, 1,550 ft. from W and 3,150 ft. from the N line of survey, Juan Ximenes Sur. ..... Set 6⅝-in. csg. 3,625 ft.
Mid-Kansas Oil & Gas Co.'s No. 1 Moore, 150 ft. from N, 162 ft. from E of Moore 200-ac. tract, M. J. Prue Sur. ..... Drlg. 3,494 ft.
Mass et al's No. 1 Matthews, 3,244 ft. from N, 4,356 ft. from E, Dalines Cartimas Sur. ..... Drlg. 2,700 ft.
Moss & Urschel's No. 1 Mayfield-Alford, 221 ft. from S, 200 ft. from W of 10-ac. lease, Juan Ximenes Sur. ..... Will standardize; T. D. 3,630 ft.
Moss and Urschel's No. 2 Mayfield-Alford, 211 ft. from S and 790 ft. from W of lease, Juan Ximenes Sur... Set 175 ft. of 12½-in. csg.
Merrick Oil Co.'s (Gibson & Johnson) No. 1 Ashby, 125 ft. from E, 125 ft. from S of Ashby 45-ac. tract, Juan Ximenes Sur. ..... Fishing 3,367 ft.
Merritt et al's No. 1 Cooper, 165 ft. from E and 170 ft. from S of most easterly SE cor. of T. J. Moore Sur. ..... Drlg. 1,200 ft.
Nat Saddler's No. 1 Ed Sparks, 350 ft. from E, 150 ft. from S of survey, L. C. Riggs Sur. ..... Drlg. 750 ft.
Olsen Bros.' No. 2 Brown, 150 ft. from S, 150 ft. from E of 76.93-ac. tract, 4,900 ft. from N and 1,750 ft. from E of lease, M. J. Prue Sur. ..... Drlg. 3,412 ft.
Olsen Bros.' No. 3 Brown, 340 ft. S along W line of T. J. Brown 76-ac. from NW cor. of same and 200 ft. E at right angles to W line of M. J. Prue Sur. ..... Rig up.
Pearl Oil Co.'s No. 1 D. W. Eaton, 975 ft. from most southerly S line of middle tract and 400 ft. from W line of Francisco Cordova Sur. ..... Drlg. 2,460 ft.
Perry et al's No. 1 Thrash, 2,050 ft. from W and 3,200 ft. from N of survey, Juan Ximenes Sur. ..... Rig up.
Petroleum Marketing Co.'s No. 1 Arnold, 350 ft. from E and 2,100 ft. from S of survey, M. J. Prue Sur. .. Fishing 3,073 ft.
Petroleum Marketing Co.'s No. 1 Deason, 1,200 ft. from S line and 1,800 ft. from E line of survey, M. J. Prue Sur. ..... Set 6⅝-in. csg. 3,650 ft.
Petroleum Marketing Co.'s No. 1 Frederick, 5,100 ft. from W and 600 ft. from N of survey, Juan Ximenes Sur. ..... Drlg. 3,000 ft.
A. W. Phillips' No. 1 Deason, 540 ft. from E and 550 ft. from S of D. F. and A. J. Deason tract, Juan Ximenes Sur. ..... Derrick.
Pilot's No. 2 Finney, 1,850 ft. from W and 1,500 ft. from N of survey, Juan Ximenes Sur. ..... Rig up.
Pioneer Oil Co.'s No. 1 Taliaferro, 300 ft. from W and 3,200 ft. from N of survey, Juan Ximenes Sur. ..... Drlg. 2,805 ft.
Pioneer Oil Co.'s No. 1 Thrash, 1,400 ft. from E line and 4,400 ft. from S line of survey, M. J. Prue Sur. ..... Drlg. 2,142 ft.
Pioneer Oil Co.'s No. 2 Thrash, 5,850 ft. from S and 1,900 ft. from E of survey, M. J. Prue Sur. ..... Shut down 970 ft.
Pioneer Oil Co.'s No. 3 Thrash, 1,275 ft. N along E line of A. Thrash 71-ac. tract from SE cor. of same and 485 ft. W at right angles to E line, M. J. Prue Sur. ..... Derrick.
Pioneer Oil Co.'s No. 4 Thrash, 1,900 ft. from E and 4,725 ft. from S of survey, M. J. Prue Sur. ..... Location.
Pioneer Oil Co.'s No. 5 Thrash, 1,900 ft. from E line and 5,025 ft. from S line of survey, M. J. Prue Sur. ..... Rig up.
Robertson Drlg. Co.'s No. 1 Deason, 3,400 ft. from S and 1,800 ft. from W of survey, Juan Ximenes Sur. ..... Rig up.
Robert's No. 1 School Land, center of 4-ac. school tract on the middle S line between Gates 70-ac. and Selman 72-ac. tracts, M. J. Prue Sur. ..... Drlg. 1,860 ft.
Rusk County Oil Co.'s No. 1 Robertson, 150 ft. from N along W line of George Guthrie Sur. from SE cor., 150 ft. W of E line of Robertson 20-ac. tract, R. H. Pinney Sur. ..... Fishing 1,285 ft.
J. Rusk et al's No. 1 W. B. Thompson, 150 ft. out of SW cor. of 59-ac. Thompson tract, John Dougherty Sur. ..... Drlg. 1,800 ft.
Shaw Oil Co.'s No. 1 Robertson, 1,780 ft. from W and 3,050 ft. from S of survey, Juan Ximenes Sur. ..... Spudding.
Shaw Oil Co.'s No. 1 Thrash, 3,200 ft. from the E line and 6,000 ft. from the S line of survey, M. J. Prue Sur. ..... Set 6⅝-in. csg. 3,673 ft.
Sinclair Oil & Gas Co.'s No. 1 Daisy Bradford, 150 ft. from N and 150 ft. from E of Daisy Bradford 35-ac. lease, Juan Ximenes Sur. ..... Spudding.
Sinclair Oil & Gas Co.'s No. 2 Daisy Bradford, 150 ft. from N and 150 ft. from E of 35-ac. lease, Juan Ximenes Sur. ..... Rig up.
Sinclair Oil & Gas Co.'s No. 4 Holland, 558 ft. from E, 197 ft. from S of 50-ac. lease and 105-ac. tract, Juan Ximenes Sur. ..... Oil sand 3,616-95 ft.; running tubing.
Sinclair Oil & Gas Co.'s No. 5 Holland, 200 ft. from N and 200 ft. from W of 50-ac. lease, Juan Ximenes Sur. ..... Set 278 ft. of 12½-in. csg.
Sinclair Oil & Gas Co.'s No. 6 Holland, 450 ft. from N and 200 ft. from E of 50-ac. lease, Juan Ximenes Sur. ..... Drlg. 2,880 ft.
Sinclair Oil & Gas Co.'s No. 7 Holland, 925 ft. from E and 150 ft. from S of lease, Juan Ximenes Sur... Waiting on csg. 274 ft.
Tennant, receiver's No. 1 Harvey Brooks, 1,200 ft. from N, 150 ft. from W of Brooks 176-ac. tract, M. J. Prue Sur. ..... Shut down 3,670 ft.
E. R. Tennant's No. 2 Brooks, 1,300 ft. from E and 6,500 ft. from S of survey, M. J. Prue Sur. ..... Drlg. 2,300 ft.
E. R. Tennant's No. 2 Bradford, 6,720 ft. from N and 1,900 ft. from W of survey, Juan Ximenes Sur. ..... Drlg. 2,250 ft.
E. R. Tennant's No. 3 Bradford, 1,890 ft. from W and 6,850 ft. from S of survey, Juan Ximenes Sur. ..... Rig up.
Tidal Oil Co.'s No. 2 Holland, 150 ft. from N and 197 ft. from E of lease, Juan Ximenes Sur. ..... Waiting on csg. 233 ft.
Turman Oil Co.'s No. 1 Deason, 770 ft. from N. 150 ft. from W of 50-ac. tract, M. J. Prue Sur. ..... Drlg. 3,546 ft.

Any Industry, large or small can improve efficiency with *Dependable* Power

THE WORLD'S LARGEST INDEPENDENT REFINERY

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Interior view of number 2 Pump House, showing electrically driven pump equipment.

During 1930, the Mid-Continent Petroleum Company used 15,000,000 kilowatt hours of power from Public Service Company's transmission lines in its West Tulsa Refinery. The extensive use to which Public Service power is put in the manufacture of world renowned Diamond Petroleum Products include:

- PUMPS for gathering lines
- WATER CIRCULATION for power plant and processes
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A constantly growing number of Refiners are modernizing their operations with electric power in an increasing variety of uses, with economical results, such as elimination of condensation losses, repair, maintenance and attendance costs. If your plant is located in the territory served by Public Service transmission lines, our engineers will gladly tell you how you can benefit from the adequate, dependable power furnished by this vast interconnected system.

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...COMPANY of Oklahoma...

PUBLIC SERVICE BUILDING, TULSA

Turman Oil Co.'s No. 2 Deason, 150 ft. from N and 150 ft. from W of 50-ac. Deason tract, M. J. Prue Sur. ... Drlg. 2,750 ft.
Vaughn et al's No. 1 Young, 2,950 ft. from E and 6,300 ft. from S of survey, M. J. Prue Sur. ... Drlg. 900 ft.
Vitek's No. 1 Jobe, 2,950 ft. from W and 3,260 ft. from N of survey, Juan Ximenes Sur. ... Derrick.
West Texas Oil & Ref. Co.'s No. 1 John Tolly, 150 ft. from N and 150 ft. from E of 11-ac. tract, Juan Ximenes Sur. ... Drlg. 2,250 ft.
Witherspoon et al's No. 1 Daisy Bradford, 200 ft. from S of N line, 1,500 ft. E of W line of Bradford 23-ac. lease, Juan Ximenes Sur. ... Drlg. 1,970 ft.

SMITH COUNTY

Big Indian Oil Co.'s No. 1 Mills, 1,045 ft. E along S line of C. Mills 67.8-ac. farm, SW cor. of same and 710 ft. N at right angles to S line of 67.7 acres, J. Jordan Sur. ... Derrick.
Howard Petroleum Co.'s No. 1 Lee Holt estate, 6,000 ft. from N and 1,000 ft. from S of survey, Barnes Clark Sur. ... Location.
Guy V. Lewis' No. 1 S. S. Cooke, 150 ft. from E and 150 ft. from S of Cooke 58.5-ac. tract, J. Jordan Sur. ... Drlg. 3,250 ft.
Thayer & Rogers' No. 1 Willingham, 150 ft. N and W of 14.5-ac. tract, Jacob Hernin Sur. ... Shut down 2,400 ft.
Winona O. & G. Co.'s No. 1 Freeman, 150 ft. from S, W of 89-ac. tract in A. J. Legrone Sur., 4 miles SE of Winona ... Shut down 3,681 ft.

UPSHUR COUNTY

D. Armand et al's No. 1 Marshall Fluellan, 450 ft. from N and 450 ft. from E of W 50 acres of S 100 acres of Fluellan 417-ac. farm, Marshall Mann Sur. ... Drlg. 2,800 ft.
McGinley Corp.'s No. 1 J. W. Minton, 507 ft. from S and W of Sinton 50 acres E of Bettie, L. B. Brown Sur. ... Coring 3,614 ft.

VAN ZANDT COUNTY

T. Daniels' No. 1 Fannie Cumbine, 185 ft. S and 175 ft. E of NW cor. 156-ac. tract, John Wright Sur. ... Temporarily abandoned.
Dennis Oil Co.'s No. 1 C. W. Morris, 100 ft. from N and 300 ft. from E line of Morris 160-ac. tract in C. L. Morris Sur., 5 miles SE of Ben Wheeler ... Temporarily abandoned.
J. C. Fare's No. 1 P. S. Hand, C of Hand's 50-ac. tract, William Shuman Sur. ... Fishing 5,160 ft.
H. Helms et al's No. 1 Bogue, 647 ft. W and 155 ft. S of SE cor. of J. M. Brown 70-ac. in Marshall University Sur., SE of Van ... Shut down 3,098 ft.
Humble Oil & Ref. Co.'s No. 1 L. A. Dowdle, 1,027 ft. N of S line and 150 ft. E of W line, William Daniel Sur. ... Temp. abnd. 2,987 ft.
Imperator Oil Co.'s No. 2 G. W. Carter, 175 ft. from S and 35 ft. from W of G. W. Carter 171-ac. tract, William Daniel Sur. ... Shut down.
Kelly Oil & Gas Co.'s No. 1 Lemsford, center of Lemsford tract, John Conner Sur. ... Shut down 2,300 ft.
Neil McMehory's No. 1 R. V. Murphy, 150 ft. from N and 150 ft. W of survey, H. Bailey Sur. ... Shut down 2,450 ft.
Pure Oil Co.'s No. 2 A. F. Magus, 250 ft. N of most northerly S line and 250 ft. west of E line, Nacogdoches School Land ... Location.
Pure Oil Co.'s No. 2 Crim, 250 ft. from S and 200 ft. from E of 40-ac. lease in John Walling Sur. ... Location.
Pure Oil Co.'s No. 5, 200 ft. E of W line and 250 ft. N of S line of Tract No. 3, John Walling Sur. ... Derrick.
Pure Oil Co.'s No. 2 R. E. Cade, 200 ft. W of E line and 250 ft. N of S line of lease, John Walling Sur. ... Location.
Pure Oil Co.'s No. 3 R. E. Cade, 547 ft. N of S line and 225 ft. E of W line of lease, A. McPhail Sur. ... Drlg. 1,468 ft.
Pure Oil Co.'s No. 2 A. G. Tunnell, 250 ft. N of S line and 200 ft. W of E line, John Walling Sur. ... T. D. 2,942 ft.; testing; shut in.
Pure Oil Co.'s No. 6 A. R. Tunnell, 203 ft. N of N line of A. D. Clark 2-ac. tract and 150 ft. W of E line of lease, John Walling Sur. ... Set csg. 303 ft.
Pure Oil Co.'s No. 1 Davis, 127 ft. from S and 200 ft. from W of 139-ac. tract, Nacogdoches County School Land ... Derrick standing.
Pure Oil Co.'s No. 4 W. F. Swain, 250 ft. S of N line and 200 ft. W of E line of lease, Mund Gross Sur. ... Derrick.
Pure Oil Co.'s No. 2 J. D. Miller, 250 ft. N of S line and 250 ft. E of W line of lease in John Walling Sur. ... Running liner 2,933 ft.
Pure Oil Co.'s No. 6 W. T. Jarman, 344 ft. W of E line and 250 ft. S of N line of 8-ac. tract, Nacogdoches County School Land ... Testing 2,956 ft.
Pure Oil Co.'s No. 7 Jarman, 250 ft. S of N line and 250 ft. E of W line of 8-ac. tract, Nacogdoches County School Land ... Drlg. 2,006 ft.
Shell Pet. Corp.'s No. 9 E. L. Fowler, 203 ft. N of S line and 150 ft. W of E line of lease, John Walling Sur. ... Coring 2,919 ft.
Pure Oil Co.'s No. 1 R. A. Enas, 835 ft. E of W line and 150 ft. S of N line of lease, Jackson Thomas Sur. ... Ready to swab in 2,940 ft.
Pure Oil Co.'s No. 3 Ella York, 250 ft. S of N line and 250 ft. E of W line, John Walling Sur. ... Shut down 2,455 ft.
Pure Oil Co.'s No. 1 Frank Blackstock, 88 ft. N of S line and 200 ft. E of W line of lease, John Walling Sur. ... Preparing to abandon 2,990 ft.
Pure Oil Co.'s No. 10 J. T. Thompson, 150 ft. E of W line and 142 ft. N of N line of Van Methodist Church, Mund Gross Sur. ... Drlg. 886 ft.
Roy Stumpff's No. 1 Riggs, 169 ft. from E and 155 ft. from S of 3-ac. tract, William Daniel Sur. ... Derrick (rotary).
Sun Oil Co.'s No. 2 T. J. Wallace, 250 ft. S of N line and 250 ft. W of E line of lease, John Walling Sur. ... Coring 2,936 ft.
Van Oil Association's No. 1 Tankersley, 200 ft. from E and 1,000 ft. from S of farm, L. Landers Sur. ... Shut down 1,028 ft.

WOOD COUNTY

Loche & Clark's No. 1 A. C. Pick, 165 ft. S of NE cor. G. C. Reeves 25-ac. tract, Daniel Fuller Sur. ... Shut down 997 ft.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 52)

Brown et al's No. 1 Duncan, 330 ft. S and E, NW, Sec. 93, Blk. 3, I.&G.N. Sur. ... S.D. 740 ft.
Champlin's No. 3 McLaughlin, 1,650 ft. N, 990 ft. E, H.&G.N. Sur.; (old well drilled deeper), Sec. 33, Blk. B-2 ... Drlg. 2,950 ft; 400 ft. oil in hole.
Danciger O. & R. Co.'s No. 1 Sullivan, 231 ft. N, 224 ft. W, of E 160 ac. of S 264 ac., N½, Sec. 136, Blk. 3, H.&G.N. Sur. ... Standardizing 2,850 ft.
Danciger O. & R. Co.'s No. 1 Barnett, 231 ft. S, 330 ft. W, E½ of N 56 ac., Sec. 136, Blk. 3, I.&G.N. Sur. ... S.D. 2,996 ft; S.G; to drill in.
Danciger O. & R. Co.'s No. 2 Sullivan, 231 ft. N, 884 ft. W of E 160 ac. of S 264 ac., N½, Sec. 136, Blk. 3, H.&G.N. Sur. ... S.D. 3,351 ft.
Empire G. & F. Co.'s No. 3 Wall, 990 ft. S and W, NW, Sec. 161, Blk. 3, I.&G.N. Sur. ... Cmtd. 8-in. 2,391 ft.
Jean Pet. Co.'s No. 1 Furneaux Bros., 330 ft. N and W, cor. SE, Sec. 200, Blk. B-2, H.&G.N. Sur. ... S.D. 2,770 ft.
Kewanee O. & G. Co.'s No. 1-D Morse, 330 ft. N and W, Sec. 16, Blk. A-9, H.&G.N. Sur. ... Drlg. 2,215 ft.
Kewanee O. & G. Co.'s No. 1 Morse, 330 ft. N and E, S½ SE, Sec. 15, Blk. 9-A, H.&G.N. Sur. ... Drlg. 2,135 ft.
Kewanee O. & G. Co.'s No. 3 Smith, 330 ft. N and W, Sec. 149, Blk. 3, I.&G.N. Sur. ... Drlg. 3,035 ft.
Magnolia Pet. Co.'s No. 1 Barrett, 330 ft. S and E, NE, Sec. 112, Blk. 3, I.&G.N. Sur. ... Drlg. 2,000 ft.
Magnolia Pet. Co.'s No. 4 Latham, 300 ft. N, 320 ft. E, Sec. 153, Blk. 3, I.&G.N. Sur. ... Drlg. 2,375 ft.
Magnolia Pet. Co.'s No. 1 Eddington, 330 ft. N, 370 ft. E, NE, Sec. 34, Blk. B-2, H.&G.N. Sur. ... Drlg. 1,925 ft. on new hole.
McIlroy Oil Co.'s No. 1 Baer, 330 ft. S and W, Sec. 125, Blk. 3, I.&G.N. Sur. ... Drlg. 3,303 ft.
Nelson et al's No. 1 Crews, 330 ft. S and E, NW, Sec. 12, Blk. 25, H.&G.N. Sur. ... Fishing for bit; T.D. 2,620 ft.
Operators Royalty & Prod. Co.'s No. 2 Vanniman, 330 ft. S and W, E½ NE, Sec. 175, Blk. 3, I.&G.N. Sur. ... Set 8-in. csg. 2,787 ft.
Sanders et al's No. 1 Wright, 330 ft. S, 114 ft. E, Sec. 12, Blk. 3, I.&G.N. Sur. ... Drlg. 1,641 ft.
W. A. Scott's No. 1 Cobb, 330 ft. S, 425 ft. W, N½ SE, Sec. 184, Blk. 3, I.&G.N. Sur. ... Plugged back to 2,720 ft.
Skelly O. & G. Co.'s No. 1 Henston, 330 ft. N, 330 ft. E, Sec. 164, Blk. 3, I.&G.N. Sur. ... Rig.
Stanolind O. & G. Co.'s No. 2 Cobb, 330 ft. S and E, Sec. 165, Blk. 3, I.&G.N. Sur. ... Drlg. 1,205 ft.
Sullivan & Ochiltree's No. 1-A Morse, 330 ft. S and W, N½ NE, Sec. 15, Blk. A-9, H.&G.N. Sur. ... S.D. 2,686 ft.
The Texas Co.'s No. 1 Webb, 330 ft. S and E, Sec. 12, Blk. 26, H.&G.N. Sur. ... Drlg. 536 ft.
Warner Oil Co.'s No. 1 Morse, 330 ft. S and W, N½ NW, Sec. 68, Blk. 25, H.&G.N. Sur. ... Cellar.

HUTCHINSON COUNTY

Canadian River Gas Co.'s No. 1 Dunnaway, 330 ft. N, 1,320 ft. E, NE NE, Sec. 5, Blk. Y-2, T.T. Sur. ... Cmtd. 8-in. 2,120 ft.
Continental Oil Co.'s No. 1 Moore, 990 ft. S, 2,276 ft. W, S½ SW, Sec. 21, Blk. M-21, T.C. Sur. ... Drlg. 2,150 ft.
Deal O. & G. Co.'s No. 2 Sanford, 330 ft. N and E of N 80 ac., S 160 ac., Sec. 81, Blk. 46, H.&T.C. Sur. ... S.D. 450 ft (SLM).
Dixon Creek Oil Co.'s No. 1-F Johnson Bros., 330 ft. N and E of W 67 ac., SW, Sec. 15, Blk. XO3, H.&O.B. Sur. ... T.D. 2,950 ft.
Huber Prod. Co.'s No. 1 Johnson Bros. (Premier), 300 ft. N and E of W 60 ac., N 80 ac., NW, Sec. 3, Blk. Y, A.&B. Sur. ... Drlg. 710 ft.
Huber Pet. Co.'s No. 1 McIlroy, 330 ft. S, 330 ft. W, Sec. 28, Blk. Y, A.F.B. Sur. ... Set 12-in. csg. at 600 ft.
Liner Drlg. Co.'s No. 1-D Johnson Bros., 330 ft. N and E, W½ SW, Sec. 6, Blk. 1, B.&B. Sur. ... S.D. 2,990 ft; 20,000,000 ft. gas 2,974 ft.
Liner et al's No. 1 Johnson Bros., 990 ft. S, 330 ft. E, W½ SE, Sec. 29, Blk. Y, A.&B. Sur. ... Spudded and S.D.
Phillips Pet. Co.'s No. 1 Hamilton, 990 ft. E, 1,650 ft. S, Sec. 22, Blk. 47, H.&T.C. Sur. ... Location.
Stanolind O. & G. Co.'s No. 1 Barnhill, common cor. of Tracts 28, 29, 30 and 31, of G. Martinez Sur., Blk. 2 ... Drlg. 3,163 ft; gas 3,135-41 ft.
Stanolind O. & G. Co.'s No. 2-A Pitcher, 990 ft. S, 330 ft. W, SE, Sec. 19, Blk. M-21, T.C.R.R. Sur. ... Drlg. 2,850 ft.
Skelly Oil Co.'s No. 1 Johnson Bros., 660 ft. S and W, SE, Sec. 30, Blk. Y, A.&B. Sur. ... S.D. 3,115 ft.
The Texas Co.'s No. 1 Moore, 990 ft. N, 330 ft. W, SE, Sec. 21, Blk. M-21, T.-C. Ry. Sur. ... Standardize 1,100 ft.
Texilvania Oil Co.'s No. 1 Harvey, 330 ft. N and W, SW NW, Sec. 14, Blk. M-21 ... Drlg. 2,400 ft.

LIPSCOMB COUNTY

Okla. Public Service Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. ... T.D. 5,003 ft.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles Ranch ... Small S.O. 1,133-40 ft; S.D. 4,167 ft.

MOORE COUNTY

Cloud & Dana's No. 1 Jones, 330 ft. N and E, SW, Sec. 169, Blk. 3-T, T.&N.O. Sur. ... Drlg. 3,135 ft.
Continental Oil Co.'s No. 1 Brown, 990 ft. N and W, SE, Sec. 172, Blk. 3-T, T.&N.O. Sur. ... Drlg. 2,980 ft.
Dana O. & G. Co.'s No. 1 R. Utey, 330 ft. S and W, NE, Sec. 155, Blk. 3, T.&N.O. Sur. ... Drlg. 2,962 ft.
Gulf Prod. Co.'s No. 2 Kilgore, C SE, Sec. 29, Blk. P.Mc., E.L.R.R. Sur. ... Drlg. 2,641 ft.
Sunray Oil Co.'s No. 1 Rupert, 660 ft. N, 330 ft. E, NW, Sec. 191, Blk. 3-T, T.&N.O. Sur. ... Cellar.
Plains Holding Co.'s No. 1 Bridges, 1,690 ft. S and E, NW, Sec. 252, Blk. 3-T, T.&N.O. Sur. ... Set 8¼-in. csg. 2,695 ft.
Sunray Oil Co.'s No. 2 Jones, 330 ft. S, 990 ft. E, W½ SW, Sec. 164, Blk. 3-T, T.&N.O. Sur. ... Rig on ground.
The Texas Co.'s No. 1 Jester, C SW, Sec. 14, Blk. 6-T, T.&N.O. Sur. ... Location.

MOTLEY COUNTY

Matador Oil Corp.'s No. 1 Owens, C NE, Sec. 10, Blk. G, B.&B. Sur. ... S.D. 580 ft.

OLDHAM COUNTY

Amalgamated German-American Oil Corp.'s No. 1 Norton, 330 ft. S and E, Sec. 12, T.&N.O. Sur. ... Spudded and S.D.
Chambers et al's No. 1 Herring, CNL, Sec. 29, Blk. S, G.C.&S.F. Sur. ... Drlg. 900 ft.

POTTER COUNTY

Canadian River Gas Co.'s No. 1-B Crawford ... Skid rig.

WHEELER COUNTY

Devore & Robinson's No. 1 Sitter, 2,310 ft. S and E, Sec. 33, Blk. 24, H.&G.N. Sur. ... S.D. 2,193 ft; estimated 63,000,000 ft. gas.
Reno Oil Co. et al's No. 1 D'spain, 330 ft. N and W, NE, Sec. 52, Blk. 24, H.&G.N. Sur. ... S.D. 2,505 ft.
Vollmert's No. 1 Porter, 330 ft. S and E, NE, Sec. 15, Blk. 27, H.&G.N. Sur. ... Rigged up and S.D.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 52)

Grisham & Hunter's No. 2 Garren, 2,475 ft. from S and 1,566 ft. from E. Sec. 20, Blk. 89, Public School Land ... Shut down 1,520 ft.
Kornrumpf et al's No. 1 Garren, 330 ft. S and W Sec. 15, Blk. 79, Public School Land ... Shut down 1,240 ft.

DAWSON COUNTY

Albaugh et al's No. 1 Robinson, C NW Sec. 46, Blk. M, E.L.&R.R. Sur. ... Spudded 20 ft. and shut down.

ECTOR COUNTY

Galt, Brown & Penn's No. 1 Cowden, C SE Sec. 12, Blk. 44, Twp. 2s, T.&P. Sur. ... Shut down 180 ft.
H. F. Wurtz No. 1 E. A. Ibbetson et al, 330 ft. from N and E lines of NW Sec. 16, Blk. 46, Twp. 2s, G. M. M.Br.&A. Sur. ... Shut down 3,275 ft.
Southern Crude Oil Pur. Co.'s No. 2 Crowder & Co., 660 ft. from S and W of NE cor. Sec. 34, Blk. 43, Twp. 1n, T.&P. Sur. ... Drlg. 3,885 ft.

EL PASO COUNTY

Lane-The Texas Company's No. 1 Malone, 2,110 ft. from SW and NW of Sec. 46, J. M. Day Sur. ... Shut down 3,089 ft.
Tri-State Oil Co.'s No. 1 Bobadella, 1,325 gt. from S and E lines, Sur. No. 254, S.F. No. 7,247 ... Shut down 540 ft.

FISHER COUNTY

Roeser & Pendleton's No. 1 Gribble (Russell), 660 ft. from S and 440 ft. from W of NW Sec. 210, B.B.B. &C. Sur. ... Underreaming 8¼-in. casing 2,660 ft.

GAINES COUNTY

Texas Consolidated Oil Co. et al's No. 1 Jones, 2,310 ft. from NE Sec. 4, Blk. A-8, P.S.L. Sur. ... Drlg. 2,365 ft.

GARZA COUNTY

Pandem Oil Corp.'s No. 1 Justice, 330 ft. from S and W of Sec. 12, Blk. 4, H.&G.N. Sur. ... Spudded and shut down.
Perry & Posey's No. 1 Justice, 1,980 ft. from S and 1,650 ft. from E of Sec. 25, Blk. 6, H.&G.N. Sur. (3,500-ft. cable tool test) ... Shut down 400 ft.

GLASSCOCK COUNTY

World Oil Co.'s No. 3-C McDowell, 2,310 ft. from S and W of NE cor. Sec. 21, Blk. 34, Twp. 2s, T.&P. Sur. ... Temp. aband.; total depth 600 ft.

HOWARD COUNTY

Continental Oil Co.'s No. 1 Brindley, 660 ft. from S and E of Sec. 18, Blk. 33, Twp. 1s, T.&P. Sur. ... Drlg. 705 ft.
Green O. & R. Co.'s No. 1 Denman, 990 ft. from S and 2,310 ft. from W Sec. 14, Blk. 30, Twp. 1s, T.&P. Sur. Prepare to start drilling.
Group No. 1 Oil Corp.'s No. 2 Eason, 1,320 ft. from S and W Sec. 6, Blk. 32, Twp. 2s, T.&P. Sur. ... Rig up pump; total depth 2,444 ft.
Moody Oil Corp.'s No. 33-B Roberts, 990 ft. from N and W of Sec. 137, Blk. 29 ... Temp. aband. 261 ft.

HUDSPETH COUNTY

Patillo & Welch's No. 1 Briggs, 300 ft. from S and W Sec. 13, Blk. 73, Twp. 7s, T.&P. Sur. ... Drlg. 190 ft.
Theison's No. 1 University, 3,050 ft. from S and 2,225 ft. from E of Sec. 17, Blk. E ... Spudded 35 ft. and shut down.

IRION COUNTY

Central Oil Co.'s No. 2 Horney, 150 ft. from N and 1,320 ft. from E Sec. 3, Blk. 3, H.&T.C. Sur. ... Shut down 1,360 ft.
Denny & Andrews' No. 1 Tankersley, 1,000 ft. from E and 460 ft. from S of H. J. Volker Sur. No. 723 ... Testing 1,374 ft.
Dixie Oil Co.'s No. 1 Williams, 1,320 ft. from S and E of Sec. 1,196, T.T.R.R. Sur. ... Shut down 2,265 ft.
Straughn & Texannati Oil Co.'s No. 1 Tankersley, 150 ft. from S and 750 ft. from W of Sec. 4, Gonzales County School Land ... Plugging back to 1,220 ft. to shoot; total depth 1,506 ft.
F. F. Webb's No. 1 W. H. Williams, 200 ft. from E and 750 ft. from S line, SW NE Sec. 16, Gonzales County School Land ... Drlg. 590 ft.

JONES COUNTY

Bond & Trout's No. 1 Williams, 330 ft. S and E of SW cor. of J. W. Martin Sur. A-1,308 in Sec. 12 ... Testing well on pump; first 4 hours made 4 bbls.; pumped off; may drill deeper.
Jameson et al's No. 1 King, 4,681 ft. from S and 150 ft. from E of M. Bueno Sur. No. 196 ... Skidded 160 ft. due south.
Hardly Aole Oil Co.'s No. 1 Butter, 5,790 ft. from S and 330 ft. from E of W. Littlefield Sur. No. 282, Abst. 251 ... Underreaming 10-in. casing 1,002 ft.
Shaheen et al's No. 1 Chittim, 165 ft. from S and W of 139.8-acre farm in G. Martinez Sur. No. 195 ... 75 ft. oil in hole; total depth [illegible] ft.
Yingling et al's No. 1 Williams, 330 ft. N and E of SE cor. of Cade 160-acre tract but in Williams 200-acre farm, Sec. 17, Blk. 19, T.&P. Sur. ... Waiting on cement 2,370 ft.

LOVING COUNTY

Eppenauer et al's No. 2 Allen, 2,310 ft. from NE and 330 ft. from NW Sec. 90, Blk. 1, W.&N.W. Sur. ... Total depth 3,407 ft.; drlg. up bailer.
Falbre & Evans' No. 1 Dean, 330 ft. from NE and 990 ft. from NW Sec. 79, Blk. 33, H.&T.C. Sur. ... Cleaning out 1,095 ft.
Henshaw et al's No. 2 Reagan & McElvain, 1,650 ft. from SW and 990 ft. from SE, Sec. 84, Blk. 7, W.&N.W. Sur. ... Rig.
Hoffman et al's No. 1 Ramsey et al, 330 ft. NE and SE Sec. 83, Blk. 1, W.&N.W. Sur. ... Drlg. 760 ft.
Hoffman et al's No. 2 Ramsey et al, 2,310 ft. from NE and 330 ft. from SE Sec. 83 ... Rig.
Irwin and others' No. 1 Auld, 1,825 ft. from NE and 1,298 ft. from NW Sec. 67, Blk. 1, W.&N.W. Sur. ... Rig up.
Lockhart & Co.'s No. 3 Bowen & Wells, 330 ft. from NE and SE of Sec. 92, Blk. 1, W.&N.W. Sur. ... Shut down 4,050 ft.
Lockhart & Co.'s No. 2 fee, 676 ft. S. 330 ft. W Sec. 91, Blk. 1, W.&N.W. Sur. ... Rigged up and shut down.
Lockhart's No. 1 Bell, 1,721 ft. from NE and 410 ft. from SE Sec. 91, Blk. 1, W.&N.W. Sur. ... Location.
Lockhart's No. 1 Hubbard, 6,930 ft. from NE and 330 ft. from SE, Sec. 83, Blk. 33, H.&T.C. Sur. ... Total depth 4,220 ft.; prepare to shoot.
Lockhart & Co.'s No. 3 Hubbard, 1,650 ft. from NE line, 330 ft. NW line of Sec. 33, H.&T.C. Sur. ... Rigged up and shut down.
Rush et al's No. 1 Wheat, 330 ft. from NW and SW Sec. 77, Blk. 1, W.&N.W. Sur. ... Cellar.
Slagel Drlg. Co.'s No. 1 Cartwright et al, 2,310 ft. from S and 990 ft. from W Sec. 1, Blk. 57, Twp. 1, T.&P. Sur. ... Shut down 2,914 ft.
Tennant et al's No. 1 Martin, 990 ft. from NW and SW Sec. 66, Blk. 1, W.&N.W. Sur. ... Rig.
California Co.'s No. 2 Allen, 2,310 ft. from SE and SW lines, Sec. 90, Blk. 1, W.&N.W. Sur. ... Drlg. 2,270 ft.
California Co.'s No. 3 Allen, 2,191 ft. from NW and 2,183 ft. from SW Sec. 90, Blk. 1, W.&N.W. Sur. ... Rig up.
California Co.'s No. 4 Allen, 3,121 ft. from NW and 3,113 ft. from SW Sec. 90, Blk. 1 ... Bldg. rig.
West Texas Pet. Corp.'s No. 1 Salsbury, 330 ft. from NW and SW Sec. 89, Blk. 1, W.&N.W. Sur. ... Drlg. 2,560 ft.

MENARD COUNTY

Priest's No. 1 Sorrell, 1,000 ft. from E and 200 ft. from S cor. Sec. 132, E.L.R.R. Sur. ... Shut down 2,712 ft.
Voss & Bryan and others' No. 1 F. Bredenberger, 600 ft. from N and 1,000 ft. from W Sec. 455, E. Henkel Sur. ... Shut down 250 ft.

MITCHELL COUNTY

Lewis & Slagel's No. 1 Bell ... Cleaning out 2,820 ft.; swabbing 60 bbls. oil daily; total depth 2,827 ft.

PECOS COUNTY

Cardinal Oil Co.'s No. 1 White & Baker, 990 ft. from N and 990 ft. from E, Sec. 47, Blk. 194, T.C.&S.F. Sur. ... Fishing 150 ft.
Culberson Bros.' No. 1 Tippett (Humble), 150 ft. S and 843 ft. E of C Sec. 40, Blk. 194, G.C.&S.F. Sur. ... Drlg. 126 ft.
Dittman's No. 1 Jackson, 2,310 ft. from NE and 330 ft. from NW Sec. 28, Blk. 3, H.&T.C. Sur. ... Shut down 1,596 ft.
Disney & Gholson's No. 1 C. O. Wilson, 330 ft. from S and 330 ft. from W Sec. 27, Blk. 142, T.&St.L. Sur. ... Location.
Lancaster's No. 1 Eaton (Pure), 330 ft. from SE and SW Sec. 35, Blk. 3, H.&T.C. Sur. ... Drlg. 1,325 ft.
Magnolia Pet. Co.'s No. 1 Eaton, 2,310 ft. from SW and 330 ft. from NW Sec. 35, Blk. 3, H.&T.C. Sur. ... Underreaming 6⅝-in. casing; total depth 1,425 ft.
McCurdy & Brown's No. 2 Tippett, 150 ft. from N and W of SE Sec. 40, Blk. 104, G.C.&S.F. Sur. ... Location.
McCarty Oil Co.'s No. 3 Gray, 700 ft. from N and 2,260 ft. from W Sec. 591, G.C.&S.F. Sur. ... Shut down 1,437 ft.
Messenger et al's No. 1 Butts, 1,830 ft. from NW and 1,170 ft. from SW Sec. 54, Blk. 10, H.&G.N. Sur. ... Shut down 1,299 ft.
J. R. Miller et al's No. 1 Bennett, 359 ft. W of CWL Sec. 1, Blk. 119, G.C.&S.F. Sur. ... Shut down 2,283 ft.
Penn Oil Co. et al's No. 1 Alvis, 2,358 ft. from S and 1,327 ft. from W Sec. 155, Blk. 3, T.&P. Sur. ... Total depth 2,407 ft.
Perren Oil Co.'s No. 2 Eaton, S of E Sec. 27, Blk. 3, H.&T.C. Sur. ... Shut down 1,765 ft.
Pure Oil Co.'s No. 1 Harrison, 2,310 ft. from N and 330 ft. from W of Sec. 203, Blk. 3, T.&P. Sur. ... Shut down 5,000 ft.
Riser & White's No. 1 Riser, 2,297 ft. from S and 997 ft. from E of Sec. 24, Blk. 13, H.&G.N. Sur. ... Shut down 500 ft.
California Co. et al's No. 1 Thomas, 990 ft. from NW and SW Sec. 31, Blk. 34, H.&T.C. Sur. ... Location.
The Texas Company's No. 1 Wright, 660 ft. S and E of NW cor. Sec. 9, Blk. 131, T.&St.L. Sur. ... Shut down 3,504 ft.
Whitaker et al's No. 1 Mary Devlin, 150 ft. from N and 150 ft. from E Sec. 69, F. Hernadez Sur. ... Location.

REAGAN COUNTY

Big Lake Oil Co.'s No. 6-C University, 1,120 ft. S and 1,100 ft. from W Sec. 25, Blk. 9 ... Location.

REEVES COUNTY

R. T. Hansford's No. 1 Williams, 150 ft. from S and W Sec. 17, Blk. 6, H.&G.N. Sur. ... Shut down 380 ft.
Salsbury & Gregory's No. 1 Young Bell, 1,170 ft. from N and 330 ft. from NW line, Sec. 34, Blk. 7, H.&L.N. Sur. ... Temporarily abandoned.
Lee O. White et al's No. 1 Hershersor, 330 ft. from N and W lines of Sec. 5, Blk. 51, Twp. 10, T.&P. Sur. ... Shut down 4,415 ft.
California Co.'s No. 2 Kloh & Rumsey, 990 ft. from S and 1,520 ft. from E Sec. 11, Blk. 74, Twp. 4, T.&P. Sur. ... Underreaming 13⅜-in. casing; total depth 1,389 ft.

RUNNELS COUNTY

Dutton et al's No. 1 Dean, 5,475 ft. from NE and 1,048 ft. from NW in J. Heil Sur. No. 419 ... Shut down 2,175 ft.

SCHLEICHER COUNTY

Eastland Oil Co.'s No. 1 Joe Tisdale, C Sec. 29, Blk. M, G.H.&S.A. Sur. ... Running 12½-in. casing 1,545 ft.
Teas & Gant's No. 1 Allison, 1,320 ft. N and E of SW cor. Sec. 37, Blk. K, G.H.&S.A. Sur. ... Shut down 5,006 ft., contract depth.
Wesner et al's No. 1 Nicks, 2,310 ft. from N and 2,362 ft. from E of Sec. 77, Blk. LL, T.C. Sur. ... Drlg. up underreaming lugs; total depth 1,050 ft.
George Wilson's No. 1 Page, Sec. 40, Blk. L, 1,290 ft. from N, 1,570 ft. from W, G.H.&S.A. Sur. ... Shut down 5,027 ft.

SCURRY COUNTY

G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. ... Fishing 5,002 ft.
Scurry County Oil Exchange's No. 1 Earnest, 2,310 ft. from N and W Sec. 68, Blk. 3, H.&G.N. Sur. ... Spudded and shut down.
Seifert & Dibbie's No. 1 T. M. Blackburn, 2,310 ft. from N and 2,310 ft. from W line of Sec. 155, Blk. 97, H.&T.C. Sur. ... Drlg. 2,376 ft.

STERLING COUNTY

Beesley et al's No. 1 Foster, 2,940 ft. N and 300 ft. W of SW cor. Sec. 7, Blk. 22, H.&T.C. Sur., but in Sec. 16, Blk. 34, Twp. 4s, T.&P. Sur. ... Drlg. up underreaming lugs; total depth 637 ft.

TAYLOR COUNTY

John B. Jameson's No. 1 Webb, 1,170 ft. S and W of NE cor. Sec. 46, Lunatic Asylum Land ... Drlg. 6,301 ft.
Sanger et al's No. 1 City of Abilene, 830 ft. from S and 1,400 ft. from E of Sec. 66, Blind Asylum Land ... Shut down 2,785 ft.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW Sec. 155, Blk. D, M.-K.-T. Sur. ... Shut down 2,669 ft.
Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Georgetown Ry. Sur. ... Shut down 3,150 ft.
Miller Bros.' No. 1 Allison & Burke, C NW cor. Sec. 10, Blk. 176, T.&P. Sur. ... Shut down 120 ft.
Mrs. J. R. McPhees' No. 1 Sam Belt, C Sec. 16, Blk. D-7, E.L. Sur. ... Shut down 880 ft.; moved off machine.
Mid-Kansas Oil & Gas Co.'s No. 1 Goode, 2,152 ft. from E and 330 ft. from S Sec. 26, Blk. 161, G.C.&S.F. Sur. ... Drlg. 5,850 ft.
Woodley & Jones' No. 1 Pankenham, C SE NW Sec. 43, Blk. B-2, C.C.S.D.&R.G.N.G. Sur. ... Drlg. 660 ft.

TOM GREEN COUNTY

Belding & Dutton's No. 1 Norsworthy, 2,640 ft. from S and 587 ft. from E of John McNeese Sur. ... Shut down 760 ft.; show oil and gas 725 ft.
Fitzgerald & Taliaferro's No. 1 Bennett, C SW Sec. 1,628, E. H. Dinger Sur. ... Plugged back to 2,405 ft. to straighten hole; shut down 2,447 ft.
Mintex Oil Co.'s No. 1 Campbell Est., 446 ft. from S and 630 ft. from W of Sec. 180, Dist. No. 11, S.P. Sur. ... Shut down 1,994 ft.
Pratt & Hancock's No. 2 Lewis, 100 ft. N and 330 ft. E of most northerly SW cor. of Joshua S. Grant Sur. No. 2 ... Shut down 200 ft.

UPTON COUNTY

Duffey and others' No. 1 McClintic, 990 ft. from N and 330 ft. from E, T.C.S.D.&R.G.N.G. Sur. ... Rig.
Farley et al's No. 1 Lane, 330 ft. from S and W of NW Sec. 36, Blk. 1, M.-K.-T. Sur. ... Rig up.
Mintex Oil Co.'s No. 1 Lane, 2,310 ft. from N and 1,650 ft. from W Sec. 36, Blk. 1, M.-K.-T. Sur. ... Location.
T. P. Coal & Oil Co.'s No. 1 King Ranch Oil & Lignite Co., 2,310 ft. from N and 990 ft. from W Sec. 28, Blk. 2, M.-K.-T. Sur. ... Preparing to shoot 2,815 ft.

VAL VERDE COUNTY

Independent Operators' No. 1 Whitehead, SE SE Sec. 10, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ... Shut down 5,360 ft.
O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ... Waiting for cement to set 6,770 ft.

WARD COUNTY

Bradford et al's No. 1 Carson, 990 ft. from NE and SE Sec. 26, Blk. 5, H.&T.C. Sur. ... Drlg. 465 ft.
Beckley and others' No. 1 Johnson, 4,140 ft. from NE and 990 ft. from SE Sec. 8, Blk. 32, H.&T.C. Sur. ... Rig up spudder.
Buster Black's No. 1 Hall & Roberts, 990 ft. from NE and 1,650 ft. from NW Sec. 17, Blk. 34, H.&T.C. Sur. ... Location.
Clyde Bradford's No. 1 Hardinage and Welsor, 330 ft. from SE and 330 ft. from SW, H.&T.C. Sur. ... Location.
Chester & Smith's No. 1 Booger, 1,200 ft. from SE and 150 ft. from SW Sec. 11, Blk. 5, H.&T.C. Sur. ... Drlg. 750 ft.
Gibson & Johnson's No. 1 Johnson, 4,140 ft. from SE and 990 ft. from NE Sec. 10, Blk. 32, H.&T.C. Sur. ... Rigging up spudder.
Gulf Prod. Co.'s No. 2 Wristen Bros., 220 ft. NE of SW and 220 ft. SE of NW Sec. 18, Blk. 5, H.&T.C. Sur. ... Show gas 1,960-70 ft.; filling up with sulphur water 2,520-77 ft.; salt water 2,515 ft.; plugged back to 2,477 ft.
Gulf Prod. Co.'s No. 16 O'Brien, 2,310 ft. from S and 990 ft. E Sec. 16, Blk. F, L.M.&W.B.&A. Sur. ... Drlg. 2,600 ft.
Hankinson et al's No. 1 Emery, 3,090 ft. from SE and 510 ft. from SW Sec. 26, Blk. 5, H.&T.C. Sur. ... Location.
Magnolia Pet. Co.'s No. 1 Sealy (Atlantic), 2,130 ft. from S and 1,650 ft. from E Sec. 45, Blk. F, G.M.M.B.&A. Sur. ... Drlg. 1,815 ft.
R. F. Owens' No. 1 Johnson, 100 ft. from NE and 1,100 ft. from SE of Sec. 8, Blk. 33, H.&T.C. Sur. ... Shut down 2,800 ft.
Peck and others' No. 1 Merrett, 3,166 ft. from NE and 2,648 ft. from SE Sec. 11, Blk. 5, H.&T.C. Sur. ... Spud.
Reckford & Fergiarr's No. 1 Booger, 4,051 ft. from NE and 1,983 ft. from SE Sec. 11, Blk. 5, H.&T.C. Sur. ... Shut down 495 ft.
Shipley et al's No. 5 Hayzlett, 2,490 ft. from SE and 1,980 ft. from SW Sec. 17, Blk. 5, H.&T.C. Sur. ... Shut down 2,507 ft.
California Co. et al's No. 1 Lanham, 990 ft. from NE and SE Sec. 35, Blk. 34, H.&T.C. Sur. ... Building rig.
California Co.'s No. 1 Gordon, 330 ft. from NE and SE Sec. 6, Blk. 34, H.&T.C. Sur. ... Drlg. 1,925 ft.
Shipley et al's No. 1 Monroe, 330 ft. SE SW Sec. 3, Blk. 1 ... Shut down 3,785 ft.

WINKLER COUNTY

Magnolia Pet. Co.'s No. 1 Walton, 2,310 ft. from N and W Sec. 16, Blk. 77, P.S.L. Sur. ... Drlg. 2,980 ft.
Liner Drlg. Co.'s No. 1 Campbell, 350 ft. from N and E cor. Sec. 2, Blk. B-5 ... Shut down 4,640 ft.

SOUTHWEST TEXAS PROVEN AREAS

(Continued from Page 42)

Houston Oil Co.'s No. 1, Blk. 23 ..... T. D. 3,911 ft.; to be deepened.
Houston Oil Co.'s No. 1, Blk. 33 ..... T. D. 3,914 ft.; to be deepened.
United Prod. Co.'s No. 32 Ray, G. Habbermacher Sur.... T. D. 3,925 ft.; drlg.
United Prod. Co.'s No. 31 Ray ..... T. D. 3,969 ft.; setting csg.
United Prod. Co.'s No. 33 Ray ..... Location.
United Prod. Co.'s No. 35 Ray, 1,100 ft. east of No. 34, T. Hanson Sur. ..... Rigging up.
United Prod. Co.'s No. 34 Ray, T. Hanson Sur. ..... T. D. 3,953 ft.; comp. for 360 bbls., 225 pounds pressure.

SLICK POOL—GOLIAD COUNTY

Slick estate's No. 1 Riedel, W. C. Brown Sur., 1,830 ft. S of No. 1 Poetter ..... Location.

LASATER POOL—BROOKS COUNTY

Houston Oil Co.'s No. 3 Wormser, Maguella Sur. ..... T. D. 3,824 ft.; drlg.

CARTWRIGHT POOL—LIVE OAK COUNTY

Houston Oil Co.'s No. 3 B. L. and C. C. ..... T. D. 5,576 ft.; standing.
Houston Oil Co.'s No. 3 Dunning, M. B. Kilvin Sur. ..... Moving in rig.
Houston Oil Co.'s No. 4 B. L. and C. C. ..... T. D. 4,870 ft.; setting csg.

CHITTIM POOL—MAVERICK COUNTY

Texas Gas Utilities Co.'s No. 6 Chittim, Sec. 116, Blk. 7, I.&G.N. Sur. ..... T. D. 4,170 ft.; set csg.
Texas Gas Utilities' No. 7 Chittim, I.&G.N. Sur. ..... T. D. 3,130 ft.; shut down.

AGUA DULCE FIELD—NUECES COUNTY

Houston Oil Co.'s No. 1-B Ollie Purl ..... T. D. 5,520 ft.; drlg.

SAXET FIELD—NUECES COUNTY

O. C. Best et al's No. 1 Boory ..... T. D. 3,740 ft.; oil sand.
Houston Oil Co.'s (Andy Bowen) No. 1 Prieur, H. B. Sheppard Sur. ..... T. D. 1,465 ft.; waiting for csg.
Houston Oil Co.'s No. 2 R. Morgan ..... T. D. 4,095 ft.; set csg.
Moody-Seagraves' No. 1 Sedwick, J. Dunn Sur. ..... T. D. 3,526 ft.; coring.
W. L. Pearson Properties' No. 1 Dunn, 300 ft. S of Bay... Shut down 2,600 ft.
Saxet Oil Co.'s No. 7 Dunn ..... T. D. 3,850 ft.; drlg.

WHITE POINT FIELD—SAN PATRICIO COUNTY

United Production Co.'s No. 3 Cage ..... T. D. 446 ft.; drlg.

LAREDO DISTRICT

SCHOOLFIELD-O'BYRNE POOL—DUVAL COUNTY

Duval Oil Corp.'s No. 2 Bishop Cattle Co. ..... T. D. 2,366 ft.; drlg. plugs.
Magnolia Pet. Corp.'s No. 2 Wilson, Sur. 134 ..... T. D. 150 ft.; drlg.

RANDADO POOL—JIM HOGG COUNTY

J. W. Pippin's No. 1 Hinnant, 150 ft. each way from SW cor., Blk. 11, Sur. 147 ..... Derrick.

KOHLER POOL—DUVAL COUNTY

Humble Oil & Refining Co.'s No. 50 Kohler, 2,805 ft. from S ine, 165 ft. from W line of Sur. 164 ..... T. D. 5,318 ft.; drlg.

S. R. C. POOL—DUVAL COUNTY

S. R. C. and Vacuum's No. 4 Duval, County Ranch Lands Sur. 293 ..... Rigged up.

COLE POOL—WEBB COUNTY

O. W. Killam's No. 4 Cuellar ..... T. D. 2,514 ft.; drlg.

COLE POOL—DUVAL COUNTY

Southern Oil Co.'s No. 2 Kings-Harper, 1,794 ft. E line, 729 ft. N line of Sur. 323 ..... Location.

REISER POOL—WEBB COUNTY

O. W. Killam's No. 1 Johnson, Sur. 1,617 ..... T. D. 2,102 ft.; drlg.

CAROLINA-TEXAS POOL—WEBB COUNTY

George S. Marshall's No. 1 C. W. Webster, 810 ft. from S line, 150 ft. from W line, Sur. 684 ..... T. D. 3,960 ft.; standing.

CHARCO REDONDO POOL—ZAPATA COUNTY

Midwest Public Utilities' No. 1 Zarza, 450 ft. SW line, 450 ft. SE line, Blk. 33, Pedernal grant ..... T. D. 1,598 ft.; standing.

JENNINGS-MUCKELROY POOL—ZAPATA COUNTY

Allied Oil & Gas Co.'s No. 12 Guiterrez, 750 ft. from NE line, 3,663 ft. from SE line, Share 4, Fansler Partition, Comitas grant ..... T. D. 100 ft.; standing.
Claypool & Nixon's No. 3 Garza, Comitas grant ..... T. D. 600 ft.; drlg.
Grimm & Yakey's No. 2 Bustamente, Comitas grant .... T. D. 1,428 ft.; abandoned.
K. & P. Oil Co.'s No. 4 Bustamente, Comitas grant ..... T. D. 1,395 ft.; drlg.
P. H. Meyers' No. 1 Trevino, Sur. 412 ..... T. D. 900 ft.; standing.
J. I. Newton's No. 3 Trevino, Blk. 7, Sur. No. 66 ..... Location.
S. R. C. Oil Co.'s No. 5-D Montemayor ..... T. D. 1,318 ft.; testing.
S. T. Phelps (Blankenship) No. 2 Garza, 425 ft. W line, 425 ft. E line, Blk. 2, Sur. 413 ..... T. D. 1,780 ft.; drlg.
Shankle and Murray's No. 1 Cuellar, Blk. 6, Sur. 61 .... T. D. 1,516 ft.; drlg.
W. R. Shankle's No. 2 Garza, Comitas grant ..... T. D. 1,410 ft.; testing.

CUELLAR POOL—ZAPATA COUNTY

Brooklyn Oil Co.'s No. 1 Cuellar, Sur. 119 ..... T. D. 1,862 ft.; abandoned.
O. W. Killam's No. 40-C Cuellar, Sur. No. 278 ..... Derrick.
A. R. McLennan's No. 2 Cuellar, Sur. 277 ..... T. D. 1,566 ft.; set csg.

MIRANDO VALLEY POOL—ZAPATA COUNTY

O. W. Killam's No. 4 Killam, Blk. 11, Sur. No. 182 ..... T. D. 2,548 ft.; drlg.

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

(Continued from Page 42)

BEE COUNTY

Hurlbut et al's No. 1 Mrs. D. Chestnut ..... T. D. 5,010 ft.; shut down.
Alexander and others' No. 1 McFall, 3 miles south Skidmore ..... Moving in.
Hicks and Patton's No. 1 Billingsley, B. Q. Hadley Sur., 1½ miles N Grayburg's No. 1-A Kimball ..... T. D. 2,000 ft.; drlg.
Catlell and O'Neill's No. 1 Miller, Ronald Hotchkiss Sur. ..... Location.
Mauldin et al's No. 1 Kimball, 300 ft. S Grayburg's No. 1-A Kimball, S. Winship Sur. ..... T. D. 2,400 ft.; drlg.
E. S. Price's No. 1 Weiss, 200 ft. each way out of NW cor. of B.&B. Sur. ..... T. D. 4,423 ft.; preparing to swab.
E. S. Price's No. 2 Weiss, 900 ft. due SW of No. 1 Weiss, B.&B. Sur. ..... T. D. 4,546 ft.; testing.
E. S. Price's No. 3 Weiss, 900 ft. due NE of No. 1 Weiss.. Location.
Cosden Oil Co.'s No. 1 Stoltzfus, 2,310 ft. S and E lines of Sec. 14, Rangley Subd. of C. Miller ranch, Uranga Sur. ..... T. D. 4,500 ft.; shut down.
Humble and Huribut et al's No. 1 J. C. Wood, 150 ft. from NW line, 1,144 ft. from SW line of P. T. Irrigation Co. ..... T. D. 5,077 ft.; standing.
The Texas Company's No. 1 McCampbell, 150 ft. from N and E lines of 161-ac. tract, R. Pena Sur. ..... Location.
Rowan and Hope's No. 1 Goree, 600 ft. S, 300 ft. W Lot 4, T. B. Barton Sur. ..... T. D. 3,620 ft.; drlg.

BEXAR COUNTY

Kaye and Uhl's No. 1 Rhode, C. Texada Sur. No. 133 .... T. D. 665 ft.; shut down.
Long and Craig's No. 1 Sandemer ..... Location.
McElroy-Hall and Croach's No. 1 Sweeney, 450 ft. NW line, 700 ft. W line of tract, F. R. Hernandez Sur. ... Waiting on cement.
J. M. Russell's No. 1 F. L. Price, 1,500 ft. to N line, 660 ft. W of tract in Angel Navarro Sur. ..... T. D. 1,024 ft. in chalk; shut down for csg.
Snyder, Reeves et al's No. 2 Glasscock, 12 miles NE of San Antonio ..... T. D. 802 ft.; shut down.
Weibacher et al's No. 1 Ernst, 6,400 ft. S line, 900 ft. W line of J. Christopher Sur. ..... T. D. 938 ft.; abnd.
Russell & Moore's No. 3 Mills, Angel Navarro Sur., No. 5 ..... T. D. 936 ft.; drlg. shale.
Ueckert et al's No. 1 Palfrey, 1,000 ft. S and W lines of farm ..... T. D. 1,809 ft.; shut down.
A. M. Terrell et al's No. 1 A. Beadom, 1,100 ft. from E line, 12,000 ft. from N line of John Barber Sur. ... Location.
F. W. Tong's No. 1 Willie Sandemer, 150 ft. from NE and SE lines of the N 20 acres of Willie Sandemer 400-ac. tract, Juan Montez Sur. ..... T. D. 1,260 ft.; shut down.
Bowman and Waldrop's No. 1 Ridder, 1,000 ft. from S and W lines of 688-ac. tract, J. M. Sur. ..... T. D. 2,000 ft.; plugged back to 600 ft.; will put on pump.
Waggoner and Stieren's No. 1 S.A.S.I.F., G. Najar Sur. .. T. D. 1,145 ft.; reaming.

CALDWELL COUNTY

Callihan et al's No. 3 W. H. Callihan, 70 ft. N, 65° E of No. 2 ..... T. D. 2,525 ft.; shut down.
Neuhaus and others' No. 1 Moore, W. Clinton Sur. ..... Rigging up.

COMAL COUNTY

Caldwell & Lanier's No. 1 T. J. Byler, 175 varas from W line, 370 varas from N line of 320-ac. tract in the H.E.&W.T. No. 5,894 Sur. ..... T. D. 600 ft.; straightreaming.

DEWITT COUNTY

H. T. Roe's No. 1 Leinhardt ..... T. D. 2,170 ft.; shut down.

DUVAL COUNTY

Buchanan et al's No. 2 Wood-Welder, S. Alexander Sur. No. 102 ..... T. D. 1,521 ft.; abnd.
O'Byrne et al's No. 1 Well, B.S.&F. Sur. No. 568 ..... T. D. 600 ft.; drlg.

EDWARDS COUNTY

Phillips Pet. Corp.'s No. 2 A. G. Holman, 320 ft. from N and E lines of SE of tract, C.C.S.D.&N.G.R.G. Sur. No. 25 ..... T. D. 7,780 ft.; drlg. lime.
James Dalgish's No. 2 Peterson, 850 ft. N line, 1,100 ft. W line of Sec. 82, Blk. E in the H.E.&W.T. Sur... Location.

FAYETTE COUNTY

Elam & Reynolds' No. 1 Florence, M. Muldoon Sur., No. 13 ..... T. D. 1,040 ft.; shut down.

FRIO COUNTY

A. H. Wray's No. 1 Burns estate, 700 ft. N, 330 ft. E of C Sec. 123, Antone Hupzor ..... T. D. 3,708 ft.; pulling liner.

GOLIAD COUNTY

A. G. Riemenschneider's No. 1 A. T. Fromme, 275 ft. from N line, 912 ft. W line of 300-ac. tract, P. Dexeter Sur. ..... T. D. 2,330 ft.; shut down.
Gibson Oil Co.'s No. 1 Cyrus Parks, 3,000 ft. S and 2,500 ft. E of NW cor. of Parks ranch, Ferguson Sur. ..... T. D. 5,267 ft.; standing.
T. B. Slick's No. 1 Poetter, 1,500 ft. from SW line, 900 ft. from SE line of 591-ac. tract, Obid Marshall Sur. ..... T. D. 4,213 ft.; comp. for 500 bbls.
T. B. Slick's No. 1 Allen, Obid Marshall Sur. ..... T. D. 4,238 ft.; 100 bbls. gasoline, 50,000,000 ft. gas.

GONZALES COUNTY

Acme Oil & Royalty Corp.'s No. 1 H. K. Weber, 2,525 ft. from NW line, 2,250 ft. from SW line, Wright Sur. ..... T. D. 2,560 ft.; shut down.
Linden Pet. Co.'s No. 1 Cowley, James Smith Sur. ..... T. D. 3,775 ft.; rebuilding derrick.
Weal Oil Co.'s No. 1 Martin, 360 ft. SE line and SW line of tract, Thomas Moore Sur. ..... T. D.3,720 ft.; drlg. shale.

GUADALUPE COUNTY

O. K. Emerson's No. 1 C. A. Phillips, center of 80-ac. tract, Velda Sur. ..... Rigging up.
Luling Oil & Gas Co.'s No. 1 Nixon, E of Darst Creek, E. W. Alexander Sur. ..... T. D. 3,215 ft.; dry and abnd.
San Antonio Oil and Royalty Co.'s No. 1 Dilrell, H. and T. C. Sur. ..... Location.
Schleyer, Atherton and Armstrong's No. 1 Ogletree, Robert Smith Sur. ..... Derrick.

HAYS COUNTY

J. C. Jones et al's No. 1 Byder, John Ingram Sur. .... T. D. 700 ft.; shut down.

JIM HOGG COUNTY

J. D. Pulliam's No. 1 Jones, 1,020 ft. W line, 1,020 ft. S line, Share 5-A, Hinojosa Sur. ..... T. D. 2,888 ft.; standing.

JIM WELLS COUNTY

Carsil Oil & Gas Co.'s No. 1 McGill, D. Baldwin Sur. .... T. D. 1,750 ft.; drlg.
R. H. Ewell's No. 1 Doering, Blk. 6, Seefield Subd. ..... T. D. 1,400 ft.; drlg.
Gulf Prod. Co.'s No. 1 Shaeffer, J. Pointevent Sur. No. 1.. T. D. 1,800 ft.; drlg.
Prairie Lee Prod. Co.'s No. 1 Oppenheimer ..... T. D. 790 ft.; drlg.
Smith Clark Co.'s No. 1 Cuero Cattle Co. ..... Location.
Stewart and Blair (E. W. Ogden) No. 1 Farris ..... T. D. 2,123 ft.; setting csg.

KARNES COUNTY

J. F. Morrissey et al's No. 1 Rigsdale, 660 ft. SW of C of NE line of 170-ac. farm in the McCoull Sur. .... T. D. 2,860 ft.; drlg.
A. Edmiston's No. 1 Cochran, 150 ft. from S line, 500 ft. from E line of tract, D. B. McConnell Sur. ..... T. D. 1,010 ft.; standing.
Karnes County Development Co.'s No. 1 Hubbard, 3 miles W of Kennedy ..... Moving in.

KENDALL COUNTY

Borgett et al's No. 1 Haag, W. Avery Sur. ..... T. D. 1,010 ft.; drlg.
Sitton et al's No. 1 Garvin, C of NE of D. L. Richardson Sur., in the D. L. Richardson Sur., 1 mile NE from Kendalia ..... T. D. 1,165 ft.; shut down.
Dixon Oil Co.'s No. 1 Ottmer Behr, W of H.T.&B.R.R. Sur., 3½ miles SE from Sisterdale ..... T. D. 2,600 ft.; fishing.
P. B. Sterling's No. 1 R. J. McCrocklin, 1,350 ft. from N line, 250 ft. from W line of the B. G. Owens Sur., 4 miles W from Kendalia ..... T. D. 1,600 ft.; shut down.
R. M. Perkins' No. 1 J. Lawhorn, Sec. 10, 2,475 ft. E line, 1,488 ft. S line ..... T. D. 706 ft.; standing.
Permian Oil Co.'s No. 1 Taylor, Sec. 18, G.B.&C. Sur. .... T. D. 100 ft.; shut down.

KERR COUNTY

Evans and Gant's No. 1 Selker-Mears, C.C.S.D.&R.G. N.G. Sur. No. 1,605 ..... T. D. 285 ft.; fishing.
Evans and Gant's No. 1 E. Young, A. E. Burge Sur. No. 28 ..... Moving in rig.

KINNEY COUNTY

Marion Oil Co.'s No. 2 Jim Clamp ..... T. D. 1,389 ft.; standing.
Magnolia Petroleum's No. 1 Wardlaw, Mellton Valdez Grant ..... T.D. 5,225 ft.; drilling; reinstated, previously reported abnd.

KIMBLE COUNTY

C. L. Bryant et al's No. 1 Lambert, 7,700 ft. N and W lines of F. Lotta Sur. ..... T. D. 850 ft.; standing.
Kamon et al's No. 1 Hodges ..... T. D. 2,505 ft.; shut down; hole full water.

LASALLE COUNTY

Fred W. Valez' No. 1 Coleman, 200 ft. from S and E lines of SW Sec. 514, B.S.&F. Sur. ..... T. D. 40 ft.; standing.

LAVACA COUNTY

Cranfill & Reynolds' No. 1 Hermes, William Ryan Sur. .. T. D. 4,300 ft.; dry and abnd.
Newton Oil Co.'s No. 1 Reeves, cor. of S line of Reeves tract, John Hueser Sur. ..... T. D. 3,340 ft.; fishing.

LIVE OAK COUNTY

Jacob, Buzzini & Pickett, Inc.'s No. 1 C. E. Kay in the Bridget Fadden Sur., 3 miles E from George West .. T. D. 4,017 ft.; drlg.
Houston Oil Co.'s No. 1 D. W. Snyder, 630 ft. from S line, 150 ft. from E line of Snyder tract, T. E. Garner Sur. ..... T. D. 5,386 ft.; standing.
Illinois Exploration Synd.'s No. 1 Reeves-Brown, 1,300 ft. S of Sellars tract, 1,800 ft. E of Ry. ..... T. D. 2,145 ft.; cleaning out.
Phillips Pet. Corp.'s No. 1 Goebel, Refugio County School Land Sur. ..... T. D. 2,845 ft.; drlg.
Southern Exploration Co.'s No. 1 Ponder, B.S.&F. Sur., in eastern Live Oak ..... T. D. 2,400 ft.; drlg.
Sid Keoughan's No. 1 C. E. Terrell, 600 ft. from N line, 1,000 ft. from E line, Dan O'Boyle Sur. ..... T. D. 2,840 ft.; shut down.

LEE COUNTY

A. H. Wheeler and associates' No. 1 fee, Blk. 47, H. Donohue Sur. ..... T. D. 1,998 ft.; shut down; hole full water.

McLENNAN COUNTY

C. E. Groone et al's No. 1 League ..... T. D. 1,230 ft.; shut down.

McMULLEN COUNTY

Mogul Pet. Co.'s No. 1 Martin, 150 ft. NW line, 150 ft. to SW line of E. Melon No. 212 Sur. ..... T. D. 632 ft.; standing.
Neuhaus and others' No. 1 J. O. Massey, Sur. No. 472.. Moving in rig.
Sheree, Brodie and Emick's No. 1 Shiner, Henry Brewer Sur. ..... T. D. 1,179 ft.; shut down.

Waukesha
Ricardo Head

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MEDINA COUNTY

National Oil Co.'s No. 1 Howard, 1,750 ft. E of W line, 1,854 ft. N of S line of survey in the John George Sur. No. 9, 10 miles S of Dunlay ..... Plugged back to 1,625 ft; may make small well.
J. H. Hickey's No. 1 Odon, H. Castro Sur. No. 175 ..... T. D. 820 ft.; shut down.
Donaldson Oil & Gas Co.'s No. 2 Adams ..... Derrick.
C. H. Florian et al's No. 1 Henry Meyer ..... T. D. 200 ft.; standing.
Caldwell et al's No. 1 L. W. Burrell ..... T. D. 518 ft.; standing.
M. Eskridge et al's No. 1 Medina Valley Irrigation ..... T. D. 1,390 ft.; shut down.
Pat Armstrong's No. 1 Crawford, 1,389 ft. N line, 2,550 ft. E line of survey, 487.6 miles W of Devine ..... T. D. 2,789 ft.; shut down.
Sunflower Oil Co.'s No. 1 Mofield, J. Brothag Sur. No. 532 ..... T. D. 1,212 ft.; standing.
Yancey Development Co.'s No. 1 Faseler, Sur. No. 801 .. T. D. 90 ft.; drlg.

MILAM COUNTY

Rheubotham & Tate's No. 1 Johnson, 325 ft. from N line, 250 ft. from W line of 40-ac. tract, D. Robinson Sur. ..... T. D. 2,080 ft.; fishing.
Red Bank Oil Co.'s No. 1 Foster, A. G. Berry Sur. ..... Derrick.
Masters and Pomeroy's No. 1 Pluger, J. J. Acosta Sur. .. T. D. 1,136 ft.; shut down.
Kyser, Roberts & Dibble's No. 2 Ward ..... T. D. 2,915 ft.; shut down.
J. E. McKee et al's No. 1 Littleton, 150 ft. from N and 225 ft. from W lines of lease, C. Chevallier Sur. .... T. D. 510 ft.; shut down.
Peggie Brothers' No. 1 M. Reed ..... T. D. 650 ft.; shut down.

NUECES COUNTY

Grimm et al's No. 1 William Baur ..... T. D. 5,507 ft.; dry and abnd.
H. H. Weinert's No. 1 Mohle, 450 ft. from S line, 450 ft. from W line, Sec. 94, Bishop Subd., Palo Alto lands ..... T. D. 5,025 ft.; drlg.

REAL COUNTY

Evans & Sprinkle's No. 1 J. M. Auld, H.E.&W.T. Sur. No. 15 ..... T. D. 3,450 ft.; drlg. blue shale.
McGinley Corp.'s No. 1 Haby, C of SW Sec. 175 ..... T. D. 1,156 ft.; setting csg. (depth corrected).
Gant-Kilgore and Evans' No. 1 A. D. Auld, C.C.S.D.& R.G.N.G. Sur. No. 23 ..... T. D. 1,250 ft.; set csg.

STARR COUNTY

Los Olmos Oil Co.'s No. 2 Kelsey-Bass, Blk. 6, Porcion 77 ..... T. D. 881 ft.; drlg.
Kush and Duerkson's No. 1 Kelsey-Bass, Blk. 9, Porcion 75, Carmargo Sur. ..... T. D. 856 ft.; standing.
Menyard et al's No. 1 Sealbury, 150 ft. from E line, 6,550 ft. from N line, Share 5, Porcion 75, Jurisdiction of Carmargo ..... T. D. 349 ft.; set 8-in. csg.

SAN PATRICIO COUNTY

George B. Pickett's No. 1 Baldwin, 900 varas due E of Denton, 1,200 ft. S of the SE cor. of O'Neill Sur., Abstract 211 ..... T. D. 4,020 ft.; shut down.
Saxet Oil Co.'s No. 1 Carrol, 8 miles N of Gregory ..... Derrick.

TRAVIS COUNTY

Fort Bend Oil Co.'s No. 1 Engleman, 450 ft. N line, 150 ft. W line of 108-ac. tract, J. H. Denson Sur. .... T. D. 1,800 ft.; shut down.
F. W. Fuch's No. 1 Ballersted, A. Alexander Sur. ..... Derrick.
Franklin et al's No. 1 Wilson, A. Alexander Sur. ..... Derrick.
Waldron et al's No. 1 Cook, D. H. Minor Sur., 8 miles SW of Austin ..... T. D. 660 ft.; shut down.
Bohls and Wilson's No. 1 Norton, J. Cole Sur. ..... Derrick.

UVALDE COUNTY

Phantom Oil Co.'s No. 1 Claudt, Sec. 611 ..... T. D. 2,710 ft.; shut down.
Waldrop & Welch's No. 1 E. R. Edmonds, 1,750 ft. NW, 7,200 ft. W of Sec. 71, in the A. Gomez Sur., 8 miles S of Uvalde ..... T. D. 1,610 ft.; running csg.

WEBB COUNTY

Usher Carson et al's No. 3 Benavides, 150 ft. from S and W lines of Blk. 7, Sur. 1,613 ..... T. D. 990 ft.; drlg.

WILSON COUNTY

Stover and Wren's No. 1 John Ruess, 10,400 ft. from SW line, 2,300 ft. from NW line, O. A. Trevino Sur. No. 19 ..... T. D. 1,100 ft.; shut down.

ZAPATA COUNTY

T. H. Ward's No. 1 Uribe, 150 ft. NW line, 150 ft. SW line, Blk. 8 Subd., Share 7, Partition No. 6, T. Uribe Partition of Jose V. Borrego Sur. ..... Rigging up.
Benson Oil Co.'s No. 1 S. Vela, west corner of Blk. 12, Sur. No. 259 ..... Rigging up.
Bill Henry and others' No. 1 Gopher Trust Estate, Borrego Grant ..... Rig up.
John Poppas Pool, Inc.'s No. 1 Flores, 2,977 ft. SE line, 6,000 ft. Rio Grande River, Porcion 35 ..... Rigged up.
B. F. Nixon's No. 1 A. Guiterres, 170 ft. S line, 332 ft. E line, Lot 5, Blk. 8, Partition 10, Borrego grant .... T. D. 50 ft.; standing.
John J. O'Hern's No. 2 Benavides, Villa grant ..... T. D. 1,705 ft.; abnd.
Lowe and Rogers' No. 1 Benavides, Sur. No. 11, Blk. 5 .. T. D. 1,200 ft.; drlg.
Penny Prod. Co.'s No. 1 Juan V. Cuellar, Jr., et al, 175 ft. NE line, 175 ft. SE line Poppas Subd., Porcion 33 and 34, Blk. 1, Sur. 2 ..... T. D. 1,966 ft.; fishing.
National Oil Co.'s No. 1 Luther, 617 ft. NW line, 98 ft. NE line, Blk. 97, De Prom Subd., Porcion 6 ..... T. D. 410 ft.; drlg.
National Oil Co.'s No. 2 Adams, 150 ft. from NW line and SW line, Blk. 11, Borrego grant ..... T. D. 860 ft.; drlg.
Mackenzie and Talmadge's No. 1 Trevino, 400 ft. SE line, 200 ft. NE line, Blk. 6, Sur. No. 4, Porcion 2 and 3 ..... T. D. 610 ft.; standing.

ZAVALA COUNTY

Carl Cromwell's No. 1 Whitecotten, C of NW Sec. 1, A.P.&M. Sur. ..... Location.
F. W. Weigand's No. 1 Gates, 1,320 ft. from N line, 220 ft. from NE cor. Sur. No. 13 ..... T. D. 3,215 ft.; shut down.

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Continued from Page 38)

Southern Carbon Co.'s No. 1-B C. M. Noble, 2,966 ft. N, 1,525 ft. W, cor. Secs. 7, 8, 17 and 18, in Sec. 37-15-6.. Location.
United Gas Public Service Corp.'s No. 3 Earle, NE cor. Sec. 25-17-5 ..... Location.
United Gas Public Service Corp.'s No. 4 Earle, SE cor., Sec. 1-16-5e ..... Location.

SABINE PARISH

Buttram O. & G. Co.'s No. 1 Hale, 200 ft. N, 200 ft. E, SW cor. NE NE, Sec. 1-7-13..... Completed Mar. 7; 35 bbls.; T.D. 2,326 ft.
Durham Oil Co.'s No. 1 Polly (was Davis et al's), NE cor. NE NE, Sec. 18-8-12 (was Stacy et al's)..... S.D. 2,102 ft.
Diffie & Barnett's No. 1 Lites (was J. W. Clark's), 330 ft. N, 330 ft. W, SE cor. SW NW, Sec. 34-8-11.. S.D. 105 ft.
Franks et al's No. 1 Hays, 200 ft. N, 300 ft. E, SW cor. SE, Sec. 22-8-11..... Bailed dry 2,380 ft.
R. L. Gay tr.'s No. 1-A Long-Bell Lbr. Co., 430 ft. S, 200 ft. W, NE cor. NW NW, Sec. 10-8-13..... Derrick.
Lacey Jessup Oil Co.'s No. 1 Brown Lbr. Co. (was Lacey et al's), C NW NE, Sec. 28-8-10..... Dry and abd. 3,260 ft.
Lacey Prod. Co.'s No. 1 Cooper, 330 ft. N, 330 ft. W, SE cor. SW NW, Sec. 30-8-11..... W.O.S.R; T.D. 2,620 ft.
Lide et al's No. 1 Ponder, 990 ft. N, 990 ft. W, C, Sec. 15-7-11..... W.O.S.R. 2,800 ft.
Lide et al's No. 2 Ponder, 200 ft. S, 200 ft. E, NW cor. NE NW, Sec. 15-7-11..... Arranging to deepen 2,520 ft.
Jean Longoria's No. 1 Belton (no check), Sec. 31-9-13.... Drlg. 996 ft.
Magnolia Pet. Co.'s No. 1 R. J. Lucius, 990 ft. S, 990 ft. W, NE cor. NW NE, Sec. 2-5-12..... Drlg. hard shale 4,400 ft.
Merritt et al's No. 1 Byrd, 200 ft. N, 200 ft. W, SE cor. NW, Sec. 1-7-11..... Coring 2,327 ft.

Packard O. & G. Co.'s No. 1 Smith (was Caddo-Sabine Synd.'s), Sec. 8-7-10.....Drlg. 1,888 ft.
W. P. Pearce et al's No. 1 G. Pearce, 330 ft. N, 330 ft. W, SE cor. SW NW, Sec. 10-7-11.....Dry and abd. 2,600 ft.
H. W. Perritt's No. 4 Bowman-Hicks, SE cor. SE NE, Sec. 2-7-12.....Location.
H. W. Perritt's No. 1 Boring, NW cor. NW NW, Sec. 11-7-12.....Location.
A. H. Thomas' No. 1 Edwards est., 150 ft. NW of SE cor. NE SE, Sec. 8-8-13.....Location.
Trans-America Oil Corp.'s (was Southland Oil Co.'s), No. 1 Carter, 1,030 ft. W, 345 ft. N, SE cor. SE NE, Sec. 36-8-12.....W.O.; T.D. 2,540 ft.
John Woodley's No. 1 Sabine Lbr. Co., 400 ft. S, 330 ft. W, NE cor. SE, Sec. 12-8-12.....Cmtd. 6⅝-in. csg. 2,310 ft.

TENSAS PARISH

Seip et al's No. 1 Fowler, C SW NE, Sec. 10-10-10.....S.D. 905 ft.
A. R. Willis et al's No. 1 Currey, 1,320 ft. S, 1,320 ft. E, NW cor., Sec. 39-11-12.....S.D. 3,148 ft.

UNION PARISH

Nemours Corp.'s No. 1 Pace-Hamby, 660 ft. NE of SW cor., Sec. 35-22-3e.....Location.
Nemours Corp.'s No. 1 Stranger, 957 ft. N, 2,180 ft. E. SW cor. NW, Sec. 14-21-3e.....Location.

WEBSTER PARISH

Coyle, tr.'s No. 1 Frazer, 200 ft. N, 200 ft. E, SW cor. NE SE, Sec. 27-23-11.....Derrick.
Red Hawk Oil Co.'s No. 1 Mathews, 330 ft. N, 330 ft. E, C, Sec. 11-23-9.....S.D. 250 ft.

ARKANSAS

CHICOT COUNTY

R. R. Smith's No. 1 Lytle, 660 ft. N, 660 ft. E, C, Sec. 31-18-3.....Cmtd. back to 2,888 ft; T.D. 2,925 ft; arranging whipstock 2,865 ft.

CLAY COUNTY

S. C. Jeffus' No. 1 Underwood, 510 ft. N, 350 ft. W, C NW SE, Sec. 4-20-8.....Drlg. 1,025 ft.

CLEBURNE COUNTY
(Cable tools)

Donnelly-Craver et al's No. 1 Donophan Lbr. Co., SE cor. NW, Sec. 33-11-9.....S.D. 3,740 ft.

CRAWFORD COUNTY

Citizens Gas Co.'s No. 1 G. W. Hood, 600 ft. S, 300 ft. E, NW cor. NE SE, Sec. 13-9-32.....Began drlg. Feb. 19; drlg. 350 ft.

DALLAS COUNTY

E. C. Brewer's No. 1 W. E. Hillman, 330 ft. E, 40 ft. S, NW cor. SE NE, Sec. 20-10-13.....S.D. curing titles 2,644 ft.
J. H. James, tr.'s No. 1 Fordyce Lbr. Co., 200 ft. S, 200 ft. E, NW cor. NW NE, Sec. 11-9-15.....Missed D.S. test 2,055 ft; coring chalk 2,170 ft.

GARLAND COUNTY
(Cable tools)

Givins et al's No. 1 Garrett, 660 ft. S, 660 ft. W, C Sec. 1-8-19.....Fishing 5 3/16-in.; T.D. 3,756 ft.

GRANT COUNTY

Spann & McClung's No. 1 Sarah Page, 660 ft. W, 660 ft. S, NE cor. NW, Sec. 3-3-12.....S.D. high wtr.

HOT SPRINGS COUNTY

John Watkins' No. 1 Cunningham (was J. R. Lockhart's), 285 ft. S, 285 ft. W, NE cor., Sec. 11-5-16..S.D. 100 ft.

LAFAYETTE COUNTY

McIver et al's No. 1 Hattie, NW cor. NE, Sec. 1-20-6...S.D. for fuel 2,345 ft.
Smitherman & McDonald's No. 1 Reed, 200 ft. N, 200 ft. W, SE cor. NW NW, Sec. 16-15-22.....800 ft. fluid; ¼ oil; ¾ wtr; 1,194 ft.

LITTLE RIVER COUNTY

Roberts Oil Co.'s No. 1 H. J. Russell, 330 ft. E, 330 ft. S, NW cor., Sec. 25-12-29.....Location.

LOGAN COUNTY

J. H. Flowers' No. 1 J. H. White, Sec. 13-6-26.....S.D; W.O. 3,570 ft.

MADISON COUNTY
(Cable tools)

J. W. Baxter's No. 2 Hallin, C, Sec. 17-16-25.....T.A. 405 ft.
J. W. Baxter's No. 3 Hallin, NE SW, Sec. 1-17-26.....S.D. 50 ft.

MILLER COUNTY

Bullock Oil Co.'s No. 1 Hervey, SE NE, Sec. 33-14-26...D.S. stuck 2,720 ft; T.D. 2,813 ft.
East Texas O. & G. Co.'s No. 1 Harvey, 500 ft. E, 300 ft. S, NW cor., Sec. 2-15-26.....S.D. 2,961 ft.
E. & F. Oil Co.'s No. 1 E. L. Beck, 200 ft. S, 200 ft. E, NW cor. SW, Sec. 36-15-26.....S.D. litigation; T.D. 2,968 ft.
Fitzwater et al's No. 1 Beck, 200 ft. N, 200 ft. W, SE cor. SW SE, Sec. 33-15-26.....Set 10-in. 93 ft; S.D. 150 ft.
Gusher Bend Oil Co.'s No. 1 Adams, 120 ft. S, 800 ft. W, NE cor. NW, Sec. 26-14-26.....Drlg. 2,593 ft.
Lenz et al's No. 2 Johnson, SE cor., Sec. 24-15-16.....S.D. 4,550 ft.
Lenz et al's No. 3 Johnson, 250 ft. W, 150 ft. N, SE cor. NE NW, Sec. 24-15-26.....S.D. 2,850 ft.
J. D. McRae's No. 1 Smith, 150 ft. N, 150 ft. W, SE cor., Sec. 28-15-26.....Derrick.
Salzer & McRae's No. 1 Rose, SW cor. NE SW, Sec. 9-16-26.....S.D. fuel 475 ft.

OUACHITA COUNTY

Belmont et al's No. 1 Buck, SE cor. SE SW, Sec. 16-15-17.....S.D. 2,907 ft.
Copenhaven et al's No. 1 Elliott, Sec. 11-15-17.....Set 6-in. 2,185 ft; T.D. 2,190 ft.

PIKE COUNTY

E. R. Henderson's No. 1 Tilyou, 660 ft. W, 500 ft. S, NE cor. NE SE, Sec. 26-8-14.....Drlg. hard rock 2,360 ft.
E. R. Henderson's No. 1 J. L. Lee, 400 ft. S, 350 ft. E, NW cor. SW SE, Sec. 31-8-24.....Derrick.

POPE COUNTY

Ark.-La. P. L. Co.'s No. 1 Baird, 760 ft. S, 660 ft. E, NW cor., Sec. 11-7-20.....Drlg. sandy shale 1,050 ft.
Ark.-La. P. L. Co.'s No. 2 McFaddin, 685 ft. N, 485 ft. W, SE cor. NE SW, Sec. 15-9-21.....Drlg. hard sand 4,015 ft.

SCOTT COUNTY

Ark. Valley Gas Co.'s No. 1 Turner, C SE, Sec. 27-5-30..Location.
Heavener O. & G. Co.'s No. 1 Riser, Sec. 36-4-26.....S.D. 1,536 ft.
Waldron O. & G. Co.'s No. 1 White, NE cor. SW NW, Sec. 17-3n-29.....Drlg. 907 ft.

UNION COUNTY

Chapman & Wilson's No. 1 A. H. Hadley, 330 ft. N, 330 ft. E, SW cor. NE SW, Sec. 3-18-13.....600 ft. oil in hole; T.D. 3,570 ft; arranging to core.
B. B. Hickman's No. 1 Hogg, 330 ft. S, 150 ft. E, NW cor. SE SE, Sec. 25-16-17.....Coring red beds 3,289 ft.
Marine Oil Co.'s No. 2-B Thompson, 330 ft. N, 330 ft. E, SW cor. SE NE, Sec. 10-18-13.....Completed Mar. 8 flowing by heads; estimated 300 bbls.; T.D. 3,582 ft.
C. H. Murphy et al's No. 1 Union Saw Mill Co., 330 ft. E, 330 ft. N, SW cor. NW SW, Sec. 18-18-13.....Set 10-in. 111 ft; arranging D.S. test 2,198-2,202 ft; coring 2,682 ft.

VAN BUREN COUNTY

Glenn Kohle et al's No. 1 Scalan, 200 ft. S, 200 ft. W, NE cor. SE NW, Sec. 5-19-13.....S.D. 50 ft.

WASHINGTON COUNTY
(Cable tools)

Delbert & Graves' No. 1 Cunningham, Sec. 14-15-32.....S.D.; W.O. 602 ft.
C. H. Willoughby's No. 1 Jones, Sec. 34-16-30.....Drlg. 1,745 ft.
H. H. Taylor et al's No. 1 Runny, C NE SW, Sec. 1-13-29.S.D. 1,700 ft.

YELL COUNTY
(Cable tools)

Tegmeier & Luckett's No. 1 Falcon, Sec. 36-7-21.....S.D. 5,710 ft.

LIGHT—
STRICTLY PORTABLE—
COMPACT—
HIGHLY EFFICIENT—

The "TOLEDO" No. 999, ½" to 2", portable, power pipe machine can be carried by two men, weighs but 275 lbs. Threads and cuts pipe in record time. 2" pipe is threaded in 30 seconds, cut off in 14 seconds, smaller sizes even faster. Will pass through any ordinary door.

The "TOLEDO" No. 999 will pay for itself quickly. Sells for $275.00 ($288.75 West of Rockies) F. O. B. Toledo, or your distributor's stock.

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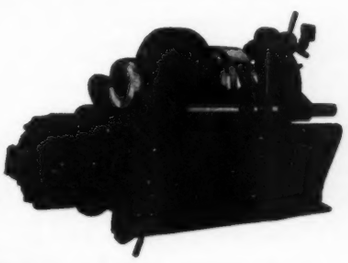

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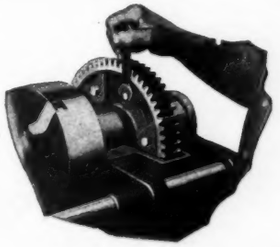

OPERATES ON ANY 110 VOLT CURRENT. FINGERS REMOVE WRENCH IF LEFT IN CHUCK, PREVENTING BREAKAGE.

"TOLEDO"

"YOU BET THEY ARE— — GOOD PIPE TOOLS"

EAST TEXAS

BOWIE COUNTY

Maud-Redwater Oil Co.'s No. 1 Merritt, 175 ft. N, 175 ft. E, SE cor. G. W. Hardidge 100-ac. tr. on Floyd Merritt tr. in Y. S. McKinney Sur. ..... S.D. 632 ft.

Lee Timberlake et al's No. 2 Tidwell, 2,510 ft. N, 655 ft. W, SE cor. T. M. Rice Sur. ..... S.D. 720 ft.

CAMP COUNTY

McDonald Bros.' No. 1 Tillery, 150 ft. E, 450 ft. S, NW cor. 127-ac. tr. in J. H. Murphy Sur. ..... S.D. 3,600 ft.

CASS COUNTY

Sam B. Hunter's No. 1 Marshall Felker, 1,800 ft. E, 160 ft. N, SW cor. 66-ac. tr., Jno. L. Chambers Sur, landowner shows Jenkins on map ..... Rigging up.

Olds & Smith's No. 1 Athey, 3,056 ft. W-E line, 856 ft. S-N line, J. C. Byers Sur. ..... S.D. 1,600 ft.

John C. Rogers' No. 1 I. E. Lanier, 573 ft. N, 879 ft. W, SE cor. Lanier 86 ac. in K. E. Welborn Sur. ..... Cmtd. 6⅝-in. 2,275 ft.

John C. Rogers et al's No. 1 W. Q. Henderson, 3,100 ft. S, 3,100 ft. E, NW cor. Wm. Davis Sur. ..... S.D. 810 ft.

J. E. Smitherman's No. 1 Bell, 385 varas S, 108 varas W, NE cor. J. E. Ferrell Sur. ..... S.D. 3,012 ft.

HARRISON COUNTY

Corona Pet. Co.'s No. 1 A. J. Bohler, C. Bohler 140 ac. in SW cor. S. F. Sparks Sur. ..... Drlg. 1,465 ft.

Crump & Hannegan's No. 1 Dunn, Betty Humphreys Sur. ..... Drlg. 2,960 ft.

W. M. Hobson, tr.'s No. 1 P. P. Taylor, Hy Vardaman Sur. ..... S.D. 3,560 ft; W.O.; Georgetown formation.

S. D. Hunter's No. 2 Doherty, W. D. Burris Sur. ..... Temp. abd. 3,565 ft.

O. H. Parkening's No. 1 T. J. Taylor, center Blk. 32, W. H. Payne Sur. ..... Moving in rig.

O. H. Parkening's No. 2 T. J. Taylor, center J. C. Hawley Sur. ..... Derrick.

W. G. Ray Drlg. Co.'s No. 1 F. C. Hall, D. Davis Sur. ..... Arranging drill.

Rowe-Nichlos' No. 1 Pitts, E. A. Merchant Sur. ..... Location.

Seigal Bros. and Kelinson's No. 1 Taylor (no check), F. O'Niel Sur. ..... Location.

Sinclair O. & G. Co.'s No. 1 Cora L. Davenport, Jno. B. Morton Sur. ..... Derrick up; moving in rig.

MARION COUNTY

Eden Oil Co.'s No. 1 J. M. DeWare est., 150 ft. S, 1,507 ft. E, NW cor. S. R. Hazelwood Sur. ..... **Location.**

Geo. Hindman et al's No. 1 F. V. Lindsey, 2,500 ft. S, most northerly N line, 3,555 ft. E most easterly W line, Alexander Albright Sur. ..... S.D. repairs 400 ft.

Hindeman & Rhondo's No. 1 McGaughey, 1,547 ft. W, most northerly SW cor., 1,638 ft. N, most northerly S line, W. J. Willis Sur. ..... S.D. 2,300 ft.

P. E. Hussey's No. 1 A. A. Trammell, Chas. Lockhart Sur. ..... **S.D. 1,884 ft.**

Shasta Oil Co.'s No. 1 B. E. Johnson, approximately 1,500 varas E and 500 varas S of SE cor. E. S. T. Greer Sur./in Wm. Mason Sur. ..... Drlg. 60 ft.

Sinclair O. & G. Co.'s No. 1 White, C. S. White Sur. .... **Rig up.**

PANOLA COUNTY

Everette Drlg. Co.'s No. 1 E. L. McDaniels, 200 ft. S, 200 ft. W, NE cor. McDaniels' 116 ac., Alanson Barr Sur. ..... Began drlg. Feb. 22; blew out at 400 ft; estimated 1,000,000 ft. gas; on fire.

The Texas Co.'s No. 2 G. W. Brumble, 400 ft. S, 200 ft. E, NW cor., Jno. Womack Sur. ..... Location.

RED RIVER COUNTY

D. M. Buffington's No. 1 Hossler, E. Hughhart Sur. ... S.D. 2,795 ft.

Johnson Pet. Co.'s No. 2 Randolph, Edw. Dean Sur. ... S.D. 2,280 ft.

SHELBY COUNTY

I. M. Bradley's No. 1 Ashberry (no check), G. W. Mitchell Sur. ..... Derrick.

Chapparell Oil Co.'s No. 2 Holt, Matthew Moore Sur. .. S.D. 3,111 ft.

Sloan Prospecting Co.'s No. 1 Sanford, approximately 300 ft. N and 200 ft. E, SW cor. B. Sanford 49-ac. tr. in M. M. Vann Sur. ..... Rigging up.

GULF COAST FIELDS AND WILDCATS

(Continued from Page 44)

Yount Lee Oil Co.'s No. 19 Chambers, south flank, Wm. Bloodgood Sur., 10 ft. N Sun Oil Co.'s No. 8 .... Drlg. salt 4,210 ft. top salt 1,807

Yount Lee Oil Co.'s No. 6 Phillips, east ..... Rig standing.

Yount Lee Oil Co.'s No. 1 Winfree, west ..... Drlg. shale and lime 5,218 ft.

Yount Lee Oil Co.'s No. 2 Winfree, west flank, W. D. Smith Sur., 50 ft. from S line and 100 ft. from E line of tract. ..... Drlg. sand and lime 4,250 ft.

RACCOON BEND—AUSTIN COUNTY

H. R. Flannigan's No. 2 Dietrich ..... Aband. in sandy shale 3,852 ft.

Humble & Valley's No. 3-A Grawunder, Wm. White Sur., 1,100 ft. southwesterly from NE line in center of 72-acre tract ..... Drlg. rock 44 ft.

Humble & Valley's No. 8 Payne, Wm. White Sur., 675 ft. from NW line and 150 ft. from SW line of lease.. Aband. in sandy shale 1,126 ft.

Humble & Valley's No. 11 Payne ..... Dry and abandoned 3,679 ft.

Humble & Valley's No. 12 Payne, Wm. White Sur., 500 ft. SE of No. 9 ..... Drlg. sand and lime 978 ft.

Humble & Valley's No. 1 Martha Remmert ..... Derrick.

Humble & Valley's No. 5 Sherrod ..... Location.

Humble & Valley's No. 13 Thompson ..... Location.

HUMBLE—HARRIS COUNTY

LaRue, trustee's No. 1 Crane, northwest ..... Derrick.

M. LaRue's No. 1 Tuffly, northwest ..... Gumbo 1,405 ft.; shut down.

Southern Coastal Oil Co.'s No. 2 Perkins ..... Oil sand 2,880 ft.; 6⅝-in. csg. stuck at 2,600 ft.

Sun Oil Co.'s No. 17 Bender (workover), Adams Sur., 217 ft. E and 50 ft. S of NW cor., Lot 9 ..... Reset screen 4,423 ft.; pumping water.

Sun Oil Co.'s No. 20 Bender, Adams Sur., Bender south addition, 254 ft. from E line and 50 ft. from S line of Blk. 2 ..... Set 44 ft. 4½-in. screen 3,836 ft.; failed to flow; rigging to pump.

Sun Oil Co.'s No. 21 Bender, Adams Sur., Bender South Addition, 300 ft. NW No. 15 ..... Drlg. shale 4,013 ft.

Sun Oil Co.'s No. 1 Beck, west flank ..... No report.

The Texas Company's No. 29 C.O.&G. (workover), J. B. Stevenson Sur. ..... Cutting liner to deepen 3,185 ft.

Trapshooter Oil Co.'s No. 3 Rosenbaum ..... Standing 4,067 ft.

TrapshooterOil Co.'s No. 10 McNeil, northwest ..... Salt 1,806 ft.; standing.

PIERCE JUNCTION—HARRIS COUNTY

Anderson & Plummer's No. 6 Whitehead (workover), J. Hamliton Sur. ..... Old total depth 6,591 ft.; sidetracked and drlg. hard sand 4,529 ft.

Gulf Prod. Co.'s No. 1 Manchester (workover) ..... Sandy shale 4,562 ft.

Gulf Prod. Co.'s No. 23 Taylor, east side, James Hamilton Sur. No. 52 (workover) ..... Total depth 4,857 ft.; sidetracked to oil sand 3,976 ft.; set 2 jts. screen and tested salt water.

Navarro Oil Co.'s No. 2 Perry (D.D.), B.B.B.&C. Sur. No. 1,028, C Blk. 46 ..... No report.

Trapshooter Reilly Oil Co.'s (formerly Mike Kouri's) No. 1 fee, B.B.B.&C. Sur. 1,028, 21 ft. from W line and 20 ft. from S line, Blk. 10 ..... Coring sand showing oil 4,130 ft.

Rio Bravo Oil Co.'s No. 14-A Settegast (workover) ..... Pulled screen and cleaned hole 5,045 ft.; to resume drlg.

Rio Bravo Oil Co.'s No. 102 G.H.&S.A., B.B.B.&C. Sur. No. 1,028, 35 ft. S of C of railroad track and 50 ft. E of No. 101 ..... Drlg. sandy shale 4,158 ft.

Smith et al's No. 1 Bender fee, B.B.B.&C. Sur. No. 1,028, 173 ft. from E line and 14 ft. from N line of Lot 40, Jones Subd. ..... Drlg. hard sand and lime 4,145 ft.

Tilton & Perot's No. 1 Gulf fee, B.B.B.&C. Sur. No. 1,028, 230 ft. from E line and 26 ft. from S line, Lot 26, Jones Subd. ..... Rig.

Superior Oil Corp.'s No. 1 Boyles (workover), B.B.B.&C. Sur. No. 1,028 ..... Set screen 4,486 ft.; comp. flowing 800 bbls. pipe line oil.

Superior Oil Corp.'s No. 2 Boyles (workover), B.B.B.&C. Sur. No. 1,028 ..... Total depth 3,874 ft.; to sidetrack.

Warner-Quinlan's No. 2 Minchen, B.B.B.&C. Sur. No. 1,028, 44 ft. from S line, Lot 5, and 134 ft. due W of No. 1 (Lot 7) ..... Sand showing oil 4,200 ft.; cmtd. 6⅝-in. csg. 4,170 ft.

BIG CREEK—FORT BEND COUNTY

Gulf Production Co.'s No. 43 Davis (workover), Michael Young Sur. ..... Formerly comp. Nov. 27, 1927, flowing 400 bbls., 2% water, sand 3,648-73 ft.; pulling screen to deepen.

SPINDLETOP—JEFFERSON COUNTY

Yount Lee Oil Co.'s No. 41 McFaddin (workover), P. Humphreys Sur. ..... Pulling screen to deepen 4,865 ft.

Yount Lee Oil Co.'s No. 111 McFaddin (workover), P. Humphreys Sur. ..... Pulling screen to deepen 4,468 tf.

Yount Lee Oil Co.'s No. 146 McFaddin, P. Humphreys Sur., 2,772 ft. from W line and 2,528 ft. from N line of tract ..... Drlg. shale 4,112 ft.

HIGH ISLAND—GALVESTON COUNTY

Marrs McLean's No. 15 Cade (workover), M. Fitzsimmons Sur., 150 ft. W No. 12 ..... Rig up to deepen 4,008 ft.

Marrs McLean's No. 16 Cade (workover) ..... Temporarily abandoned 3,759 ft after failing to pull screen.

Marrs McLean's No. 20 Cade ..... Rig standing.

ORCHARD—FORT BEND COUNTY

Gulf Prod. Co.'s No. 22 Moore (workover) ..... Drlg. sand and shale 5,009 ft.

Gulf Prod. Co.'s No. 28 Moore ..... Drlg. sand and shale 4,149 ft.

HULL—LIBERTY COUNTY

Republic Production Co.'s No. 143 Dolbear, Jesse Devore Sur., 2,160 ft. from N line and 2,712 ft. from E line of lease ..... Drlg.

The Texas Company's No. 4 Barrow ..... Set 3 jts. 4½-in. screen 4,590 ft.; flowed by heads 10 bbls. net oil daily; rigging up to pump.

CLAY CREEK—WASHINGTON COUNTY

Sun Oil Co.'s No. 2 C. H. Marcus, J. F. Perry Sur., 200 ft. S of N line and midway east and west tract .... Set 216 ft. 4½-in. screen 1,240 ft.; comp. flowing 115 bbls daily.

Sun Oil Co.'s No. 5 Caraway, J. F. Perry Sur., 200 ft. from W line and 600 ft. N of No. 2 ..... Shale 1,322 ft.; cmtd. 7-in. csg at 1,290 ft.

Sun Oil Co.'s No. 6 Witt, J. F. Perry Sur., 400 ft. SE of No. 5 ..... Location.

ALLEN—BRAZORIA COUNTY

Mills Bennett Prod. Co.'s No. 2 Reese, Thos. and Wm. Alley League, 870 ft. in southwesterly direction along N line and 720 ft. southeasterly at right angles from said line ..... Salt 4,809-5,583 ft.; drill stem stuck; abandoned.

Mills Bennett Prod. Co.'s No. 2 Random, J. G. and G. W. McNeel ½ League, 860 ft. southwesterly along N line from NE cor. and 100 ft. southwesterly at right angles from said line ..... Heaving shale 5,308 ft.; drill pipe stuck.

ESPERSON—LIBERTY COUNTY

Cranfill-Reynolds' No. 7 Davis, David Kokernut Sur., 100 ft. S of No. 4 ..... Drlg. rock 596 ft.

Cranfill-Reynolds Oil Co.'s No. 1-C Kirby fee ..... Drlg. sticky shale 5,637 ft.

HANKAMER—LIBERTY COUNTY

Gulf Prod. Co.'s No. 12 Boyt, H.&T.C. Sur. No. 22, 500 ft. E of No. 11 ..... Drlg. sand 4,036 ft.

SARATOGA—HARDIN COUNTY

Rio Bravo Oil Co.'s No. 109-A Cotton ..... Comp. pumping 18 bbls. oil 584 ft.

Rio Bravo Oil Co.'s No. 111-A Cotton ..... Spudded.

MOSS BLUFF—LIBERTY AND CHAMBERS COUNTIES

Gulf Prod. Co.'s No. 3 McFaddin, east flank ..... Drlg. hard shale 6,040 ft.

Humble Oil & Ref. Co.'s No. 2 Breeding, northwest flank.. Drlg. shale and lime 3,045 ft.

Humble Oil & Ref. Co.'s No. 7 Sterling, east flank ..... Drlg. shale and shell 5,757 ft.

Humble Oil & Ref. Co.'s No. 2 Sergeant, east flank ..... Drlg. hard lime 5,570 ft.

Texas Gulf Sulphur Co.'s No. 2 W. A. Carter, B. M. Spinks Sur., 203 varas N along E line of 54.2-acre tract from SE cor. and 19 varas W at right angles.. Abandoned in salt 1,175 ft.; sulphur test.

Texas Gulf Sulphur Co.'s No. 3 W. A. Carter, B. M. Spinks Sur., 300 varas E along N line 60-acre tract from NW cor. of tract and 50 varas E at right angles ..... Sulphur test.

Texas Gulf Sulphur Co.'s No. 1 Munger, J. McFaddin Sur., 100 ft. N and 75 ft. W out of SE cor. of 100-ac. tract ..... Sulphur test.

REFUGIO—REFUGIO COUNTY

Houston Oil Co.'s No. 14 Pratt-Hewitt-Rooke ..... Drlg. sticky shale and lime 5,236 ft.

Houston Oil Co.'s No. 5 Wilson Heard (workover) ..... Old total depth 3,686 ft.; pulling liner and screen to deepen.

Houston Oil Co.'s No. 4 Mrs. M. H. Ryals ..... Sand and shale showing oil 3,654-64 ft.; set 5 3/16-in. csg. and 22 ft. inside 9⅝-in. string.

Houston Oil Co.'s No. 1 Rooke ..... Coring sand showing oil 6,439 ft.

Houston Oil Co.'s No. 1 Doughty ..... Total depth 6,465 ft.; to sidetrack stuck drill stem.

Houston Oil Co.'s No. 3 Rose Lambert ..... Drlg. sticky shale and lime 5,385 ft.

Houston Oil Co.'s No. 1 O'Brien (D.D.), Blk. 5 ..... Failed to pull lines and screen 5,434 ft.; to sidetrack.

Ed Jones' No. 3 Mitchell, 200 ft. SW Mission River and 250 ft. SE of road in Blk. 12 ..... Total depth 6,486 ft. in salt water sand; plugged to 6,422 ft.; cmtd. 6⅝-in. csg. and screen; drilled plug and running tubing.

Luling Oil & Gas Co.'s No. 1 City, Blk. 86 ..... Oil sand 6,452-59 ft.; cmtd. 6⅝-in. csg. 6,452 ft.

Moody-Seagraves Prod. Co.'s No. 6 Morgan-O'Connor .... Tested salt water 6,450 ft.; plugged to 6,431 ft.; waiting on cement.

Moody-Seagraves Prod. Co.'s No. 7 O'Connor ..... Coring sand 6,418 ft.

Moody-Seagraves Prod. Co.'s No. 2-A J. F. B. Heard .... Rig standing.

Moody-Seagraves and Phillips Petroleum Co.'s No. 2 Mercy Academy, 167 ft. from N line and 666 ft. from E line of tract ..... Drlg. hard sand 5,840 ft.

Moody-Seagraves Prod. Co.'s No. 1 Shelly ..... Drlg. hard lime rock 4,240 ft.

T. P. Morgan's No. 1-B St. John heirs, 200 ft. from N line and 1,558 ft. from E line of lease ..... Total depth 5,517 ft.; plugged back to sand 5,477-80 ft.; cem. 6⅝-in. casing 5,405 ft.; drilled plug and setting screen.

Pearson Properties, Inc.'s No. 4 Ryals, Refugio Town tract, 150 ft. from S line and 190 ft. from W line of Ryals tract ..... Drlg. lime and shale 5,107 ft.

Ed Price's No. 3 Mission River, Refugio Town tract, 750 ft. up river from No. 2 on S bank of river ..... Rig standing.

Saxet's No. 4-A Wilson Heard (workover) ..... Cmtd. 4½-in. csg. in hard sand rock 3,654 ft.; drilled plug.

L. L. Smith's No. 2 Rogers, James Power Sur..... Drlg. shale 5,460 ft.

United Prod. Corp.'s No. 3 Fox (workover) ..... Drlg. hard sand 5,240 ft.
United Prod. Corp.'s (Union) No. 11 Fannie Heard ..... Drill stem stuck 5,780 ft.; sidetracked and drlg. shale 4,055 ft.
United Prod. Corp.'s No. 12 Fannie Heard ..... Location.
United Prod. Corp.'s (Union) No. 2 Moss-Powers, Blk. 109 ..... Derrick.
United Prod. Corp.'s No. 9 O'Brien, 150 ft. S of S line and 175 ft. E of extended W line of Moody-Seagraves' O'Brien "B" lease ..... Derrick.
United Prod. Corp.'s No. 10 O'Brien, 150 ft. E of E line of Blk. 106, Refugio Townsite, and 428 ft. N of Refugio Town Tract Sur. ..... Drlg. sand and lime 2,774 ft.
United Prod. Corp.'s No. 11 O'Brien, 200 ft. from E line and 500 ft. N of extreme S line of lease ..... Drlg. shale and boulders 3,367 ft.
United Prod. Corp.'s No. 3 Powers, Refugio Town tract, 250 ft. W of E line and 200 ft. N of S line of lease (workover) ..... Oil sand 6,454-61 ft.; cmtd. 5½-in. (O.D.) csg.
United Prod. Corp.'s No. 6 Power, S Blk. 83, Refugio Townsite ..... Rig.
United Prod. Corp.'s (Union) No. 2-A Rose Lambert, 200 ft. out of SE cor, Blk. 1, of town tract ..... Drlg. rock 1,224 ft.
United Prod. Corp.'s No. 2 Mitchell (workover), 150 ft. out of NW cor. Mitchell 150-acre tract ..... Coring gas sand 6,370 ft.
United Prod. Corp.'s No. 4 Mitchell (workover), 150 ft. out of NE cor. Mitchell 150-acre tract ..... Oil sand 6,437-51 ft.; cmtd. 7-in. csg. 6,437 ft.

SOUTH LOUISIANA FIELDS

LOCKPORT—CALCASIEU PARISH

Union Sulphur Co.'s No. 2 Martha Moss ..... Drlg. rock 5,173 ft.
Vacuum Oil Co.'s No. 7 Bordages, Sec. 9-10s-9w (workover) ..... Rigging up to deepen; formerly comp. Sept. 16, 1929, flowing 200 bbls., 15% water, 3,688 ft.
Vacuum Oil Co.'s No. 9 Bordages ..... Sand showing oil 6,522 ft.; cmtd. 9⅝-in. csg. 6,495 ft.
Vacuum Oil Co.'s No. 8 Farquahar (workover), 850 ft. S and 190 ft. E of NE cor. NE SE, Sec. 8-10s-9w.... Rig up to deepen; formerly comp. gas well 5,365 ft.
Vacuum Oil Co.'s No. 31 Miller ..... Oil sand 4,380 ft.; set 1 jt. screen.
Vacuum Oil Co.'s No. 7 State, 319 ft. N and 260 ft. W SE cor. NE Sec. 8-10s-9w ..... Drlg. sand and gravel 777 ft.

EDGERLY—CALCASIEU PARISH

Associated Oil Co.'s No. 5 Paraffine ..... Set 1 jt. 3-in. screen 3,751 ft.; bailing.
Rex Pet. Co.'s No. 2 Prairie Narroni, Sec. 21-9s-11w, 365 ft. from S line and 50 ft. from E line of lease ..... Drlg. gumbo and boulders 2,700 ft.

HACKBERRY—CAMERON PARISH

R. E. Seiss' No. 2 J. M. Vincent ..... Shut down 510 ft.
The Texas Company's No. 8 State ..... Derrick.
Yount Lee Oil Co.'s No. 34 State ..... Location.
Yount Lee Oil Co.'s No. 36 State ..... Location.
Yount Lee Oil Co.'s No. 37 State ..... Location.
Yount Lee Oil Co.'s No. 38 State ..... Location.
Yount Lee Oil Co.'s No. 39 State ..... Location.

VINTON—CALCASIEU PARISH

Gulf Production Co.'s No. 6 Gardner, 350 ft. N and 554 ft. W of SW cor. SE NE, Sec. 33-10s-12w..... Spudded.
Vinton Pet. Co.'s (Lucky Ten) No. 1 Lizzo ..... Total depth 3,326 ft.; sidetracked to oil sand 3,285 ft.; set 35 ft. 3-in. screen; bailing.
Vinton Pet. Co.'s No. 10 Matilda Gray (workover) ..... Set 1 jt. 3-in. screen 3,508 ft.; comp. pumping 300 bbls. fluid, 90% water.
Wilson-Broach's No. 2 Wilson (workover), 280 ft. N and 126 ft. E, SW cor. SE NE, Sec. 33-10s-12w..... Pulling screen to deepen; old total depth 3,617 ft.
Wilson-Broach's No. 8 Wilson, Sec. 33-10s-12w, 100 ft. N of Gulf's No. 70 G.&N.G. ..... Rig.

BAYOU BOUILLON—ST. MARTIN PARISH

Humble Oil & Ref. Co.'s No. 1 Woodyard Lake ..... Total depth 6,061 ft.; sidetracking in sandy shale and lime 5,677 ft.
Humble Oil & Ref. Co.'s No. 4 State ..... Drlg. hard sand 5,551 ft.

SWEET LAKE—CAMERON PARISH

Magnolia Pet. Co.'s No. 2 Sweet Lake, Sec. 5-13s-7w ..... Drlg. 2,112 ft.
Pure Oil Co.'s No. 10 Yount Lee ..... Pulling screen to deepen 6,830 ft.

PORT BARRE—ST. LANDRY PARISH

The Texas Company's No. 9 Botney Bay ..... No report.

SORRENTO—ASCENSION PARISH

Gulf Ref. Co.'s No. 19 United Land Co. ..... Drlg. gumbo 4,008 ft.

SULPHUR—CALCASIEU PARISH

Union Sulphur Co.'s No. 749 fee (workover) ..... Total depth 5,316 ft. in salt; sidetracked to sandy shale showing oil 4,108-19 ft.; set 11 ft. 4½-in. screen; flowed short time; rig up to pump.
Union Sulphur Co.'s No. 762 fee (workover) ..... Total depth 5,512 ft.; sidetracking stuck drill stem 5,405 ft.
Union Sulphur Co.'s No. 765 fee, Sec. 29-9s-10w ..... Rig.
Union Sulphur Co.'s No. 766 fee, Sec. 29-9s-10w ..... Drlg. gumbo and lime 2,071 ft.

BLACK BAYOU—CAMERON PARISH

Shell Pet. Corp.'s No. 12 Watkins (workover) ..... Pulling screen 5,321 ft.
Shell Pet. Corp.'s No. 16 Watkins, Sec. 18-12s-12w, 1,590 ft. from E line and 1,610 ft. from N line ..... Tested salt water 4,213 ft.; pulled screen and preparing to core deeper.
Shell Pet. Corp.'s No. 2 State, Sec. 18-12s-12w, 1,345 ft. from E line and 1,565 ft. from N line ..... Salt 4,207-4,519 ft.; preparing to sidetrack 3,895 ft.

MISCELLANEOUS WILDCATS

TEXAS

AUSTIN COUNTY

Empire Gas & Fuel Co.'s No. 1 Kuntze, San Felipe ..... Hard sand 6,232 ft.; setting liner.
O'Hara et al's No. 1 Schrader ..... Shut down 3,342 ft.
Tarmerson & Cafferkey et al's No. 1 W. M. Schlecte, John Fitzgibbons Sur., 1,850 ft. from SE line and 3,100 ft. from NE line of Sur. ..... Rig.

BRAZORIA COUNTY

The Texas Company's No. 1 Ewin, Harvey Little Sur. ... Total depth 7,584 ft.; drlg. sidetracked hole in sand and shale 7,574 ft.
Faust et al's No. 5 Faust ..... Set 68 ft. 4½-in. perforated pipe 6,220 ft.; flowed fresh water; temporarily abandoned.
Freeport Sulphur Co.'s No. 3,001 fee, Bryan Heights .... Heaving shale 5,260 ft.; reaming.
Layne et al's No. 7-A Wisdom, Damon Mound ..... Sand showing oil 3,648-53 ft.; to set 8¼-in. csg.
Amerada Pet. Corp.'s (Rycade) No. 2 Seaburn, Stratton Ridge ..... Drlg. lime 7,030 ft.
United Oil Syndicate's No. 1 Speer, A. A. Talmadge Sur... Shut down 1,575 ft.

BURLESON COUNTY

Paul Doran et al's No. 1 Sparks, H. E. Davis Sur., 6,700 ft. from S line of survey and 1,600 ft. W of Brazos River ..... Fishing 1,300 ft.
Mid-South Oil Co.'s No. 1 Duckworth ..... Tested brackish water 2,601 ft.; shut down.
Reynolds Oil Co.'s No. 1 Harris, 500 ft. from W line and 400 ft. from N line of J. M. McKean Sur. ..... Shut down 400 ft.

CALHOUN COUNTY

The Texas Company's No. 1 Smith, J. Timmons Sur., Will Mousin and Driscoll Sub. ..... Gumbo 1,769 ft.; shut down for repairs.

COLORADO COUNTY

A. H. Eaton et al's No. 1 A. R. Sureck ..... Aband. in sticky shale 2,420 ft.

GRIMES COUNTY

Deerings & Noble's No. 1 Templeton, 6 miles south of Navasota ..... Abandoned in water sand 4,559 ft.

HARRIS COUNTY

Gulf States Oil Co.'s No. 1 Angsperger ..... Abandoned in shale and lime 5,550 ft.
Humble Oil & Ref. Co.'s No. 4 Minnetex, Mykawa ..... Heaving shale 6,504 ft.; abd.
Humble Oil & Ref. Co.'s No. 5 Minnetex, Mykawa, 150 ft. from S line and 200 ft. from W line, Lot 261, Wm. Lovett Sur. ..... Location.
Humble Oil & Ref. Co.'s No. 6 Minnetex, Mykawa, Wm. Lovett Sur., C of Lot 254 ..... Location.

JACKSON COUNTY

Chicago-Gulf Co.'s No. 1 Rogers (workover) ..... Rig up to deepen 3,662 ft.; standing.
Warner-Quinlan's No. 1 Hungerford, Henry Smith Sur.... Abandoned 4,514 ft.

JEFFERSON COUNTY

Humble Oil & Ref. Co.'s No. 1 McFaddin, T.&N.O. Sur. 234 ..... Drlg. shale 5,757 ft.
Keith et al's No. 1 Reed-Hankamer ..... Drlg. sand and shale 3,643 ft.
The Texas Company's No. 4 Pipkin, Big Hill ..... Drlg. sand and shale 4,863 ft.

LIBERTY COUNTY

Hamm et al's No. 1 Harvard, Davis Hill ..... Gumbo 1,015 ft.; shut down.
J. R. Ingram's No. 1 Hornbeck, Clayton, Harper Sur. .... Shale 5,633 ft.; abandoned.
Tucker et al's No. 1 Bell, H.&T.C. Sur. No. 4 ..... Gumbo 560 ft.; shut down.

MATAGORDA COUNTY

H. C. Cockburn's No. 2 Hawkins, Shepherds Mott ..... Set 47 ft. 4½-in. screen 5,221 ft.; tested salt water; standing.
Empire Gas & Fuel Co.'s No. 1 Boker, Citrus Grove .... Total depth 6,295 ft.; sidetracked to 6,250 ft.; drill stem stuck; sidetracking second time 5,200 ft.

MONTGOMERY COUNTY

John Deering et al's No. 1 Knight, D. F. Wilden Sur., 125 ft. out of SE cor., J. A. Knight 320-acre tract.... Sticky shale 4,685 ft.; abandoned.
Lake Creek Oil Co.'s No. 1 Hunt, south of Conroe ..... Shut down 678 ft.; gumbo.
Price & Wilhite's No. 2 Guerges ..... Sandy shale and lime 3,534-52 ft.; set csg.

ORANGE COUNTY

Crew Oil Co.'s No. 1 Mansfield ..... Drlg. gumbo 1,386 ft.

SAN JACINTO COUNTY

Arkansas Fuel Oil Co.'s No. 1 A. J. McMurry, A. P. Gardner Sur., 1,255 ft. from N line and 1,945 ft. from W line ..... Cmtd. 12½-in. csg. 356 ft.
E. P. Edwards et al's No. 1 Bennett, northwest of Cold Springs ..... Spudded and shut down.

TYLER COUNTY

King Oil Co.'s No. 1 Caswell ..... Sand and shale showing oil 1,255 ft.; cmtd. 6-in. csg. 1,218 ft.
Allied Pet. Co.'s (Texas Southern Pet. Co.'s) No. 3 Wilson, Mrs. E. Cherry Sur. No. 798, 1,500 varas from W line and 600 varas from N line ..... Drlg. shale 4,681 ft.
Lew Wentz' No. 1 Long Bell, 800 varas E and 100 varas N from SW cor. James Seals Sur. ..... Drill stem stuck 1,186 ft.

VICTORIA COUNTY

Newton et al's No. 1 West ..... Shut down 1,550 ft.
Lion Oil & Refining Co.'s No. 3-A McFaddin, M. Traviesa Sur., 925 ft. northeasterly on extended line from NE cor. of C. O. Edwards Sur. and 430 ft. N at right angles ..... Derrick.
The Texas Company's No. 2 McFaddin, C. M. B. Hoyd Sur. ..... Gas well; shut in 2,025 ft.
United Gas Corp.'s No. 1-B McFaddin, M. Traviesa Sur., 3,700 ft. E and 500 ft. N from NE cor. C. O. Edwards Sur. ..... Drlg. gumbo 1,750 ft.

WASHINGTON COUNTY

Penn-Tex Oil Co.'s No. 2 Kamas Brenham, S. M. Williams Sur. ..... Drlg. gumbo 1,271 ft.
Vegua Oil Co.'s No. 1 P. Graves, S. Clampet Sur. ..... Rig.
Oliver Drlg. Co.'s No. 1-A Hahn, J. H. Alcorn Sur. A-3 .. Drlg. sand and shale 1,856 ft.

WHARTON COUNTY

H. H. Givans' No. 2 Hudgins ..... Changing rigs 1,344 ft.

SOUTH LOUISIANA

CALCASIEU PARISH

Crawford Doyle's No. 1 Johnson, Sec. 23-9s-13w ..... Shut down 875 ft.
J. O. Davis' No. 1 Industrial, Sec. 29-9s-10w ..... Set 6⅝-in. csg. with 172 ft. 6⅝-in. screen on bottom, 6,568 ft.; drilled plug and bailed dry; standing.
Wilfred Lahay's No. 1 Jardell, Sec. 16-10s-12w ..... Shut down 3,258 ft.
Dr. Thomas et al's No. 1 John Hewitt ..... Location.

CAMERON PARISH

Vacuum Oil Co.'s No. 2 Cameron Meadows, 3,120 ft. S and 1,900 ft. W from NE cor., Sec. 21-14s-9w (500 ft. S No. 1) ..... Cmtd. 13⅜-in. csg. 1,272 ft.
The Texas Company's No. 7 State, Calcasieu Lake ..... Location.

IBERIA PARISH

The Texas Company's No. 6 Vermillion Bay ..... No report.
Jefferson Lake Oil Co.'s No. 10 Lake Peigneur, Jefferson Island ..... Set 84 ft. 4½-in. perforated pipe 1,889 ft.; bailed 15 bbls. daily 21.4 gravity oil; standing.
Jefferson Lake Oil Co.'s No. 11 Lake Peigneur, Jefferson Island ..... Drlg. shale 420 ft.

IBERVILLE PARISH

Gulf Ref. Co.'s No. 1 Gay, Bayou Choctou ..... Drlg. hard sand 4,060 ft.
Standard Oil Co.'s No. 7 Wilbert, Bayou Blue ..... Derrick.
Standard Oil Co.'s No. 9 Wilbert, Bayou Des Glaise, 700 ft. E and 760 ft. N of SW cor. SE SW Sec. 78-8s-8e.. Rig.
Standard Oil Co.'s No. 2 Case, Bayou Des Glaise ..... Location.
Standard Oil Co.'s No. 1 E. B. and S. P. Schwing, Bayou Blue ..... Drlg. sticky shale 5,516 ft.
Standard Oil Co.'s No. 1 Baist Cooperage, Bayou Blue.... Drlg. gumbo 2,026 ft.

JEFFERSON DAVIS PARISH

H. T. McClain et al's No. 1 Trimble Atterbury, Welsh, Sec. 16-9s-5w ..... Drlg. packed sand 5,229 ft.
A. V. Peters' No. 1 Smith Subd., Welsh, 1,050 ft. N and 180 ft. E SW cor. Sec. 22-9s-5w ..... Location.

PLAQUEMINES PARISH

Gulf Ref. Co.'s No. 2-B Buras Levee Board ..... Drlg. cap rock 2,356 ft.
Humble Oil & Ref. Co.'s No. 2 Cockrell-Horan, Lake Grand Ecaille ..... Drlg. hard sand 5,114 ft.
The Texas Company's No. 5 State, Garden Island ..... Location.

ST. JAMES PARISH

Convent Oil Co.'s No. 2 Jacobs, Sec. 28-11s-6e ..... Total depth 2,078 ft.; sidetracking 1,780 ft.

ST. MARTIN PARISH

Harrison & Abercrombie's No. 1-A Barras, Sec. 66-11s-6e.. Drlg. water sand 6,416 ft.

ST. TAMMANY PARISH

Washington-St. Tammany's No. 2 Cossack, Sec. 5-6s-10e.. Shut down in gumbo 2,031 ft.

TANGIPAHOA PARISH

Joan Development Co.'s No. 1 Lake Superior, Sec. 20-5s-9e, 540 ft. E, 675 ft. N of SW cor. ..... Total depth 3,035 ft.; shut down.

TERREBONNE PARISH

United Prod. Corp.'s No. 9 Minor, Houma ..... Drlg. sand 5,912 ft.
The Texas Company's No. 4 State, Caillou Island ..... Driving piling.
The Texas Company's No. 6 State, Caillou Island ..... Setting up.
The Texas Company's No. 1 La.L.&E., Bay St. Elaine ... Hard sand and lime 4,751 ft.; drill stem stuck.
The Texas Company's No. 6 State, Bay St. Elaine ..... Location.
The Texas Company's No. 4 State, Dog Lake ..... Derrick.
The Texas Company's No. 5 State, Four Isle ..... Rig.
The Texas Company's No. 3 La.L.&E., Bay Junop ..... Location.
The Texas Company's No. 4 La.L.&E., Bay Junop ..... Location.
The Texas Company's No. 6 State, Lake Barre ..... Driving piling.
The Texas Company's No. 8 State, Lake Barre ..... Drlg. sticky shale 5,107 ft.
The Texas Company's No. 9 State, Lake Barre ..... Sand showing oil 3,816 ft.; cmtd. 9⅝-in. csg. 3,804 ft.
The Texas Company's No. 5 State, Lake Pelto ..... Location.

VERMILLION PARISH

Pure Oil Co.'s No. 1 Southwest, Louisiana Land Co., Gueydan ..... Drlg. salt water sand 6,031 ft.

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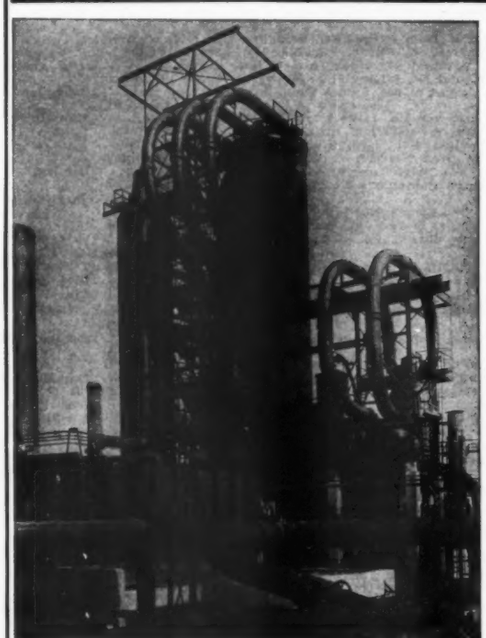

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WILDCAT OPERATIONS IN KANSAS

(Continued from Page 36)

MORTON COUNTY

Hydraulic Oil Co.'s No. 1 State Land, NW SE Sec. 22-34-43w ..... Fishing 5-in. csg. 3,460 ft.

MORRIS COUNTY

Great Basin Oil Co.'s No. 1 Ballyntine, SW SE SE Sec. 18-16-5 ..... Abandoned 2,336-45 ft.; water.
Urschel et al's No. 1 Bersuch, NW SE NW Sec. 10-17-7 .. Machine.
Hankerson et al's No. 1 Cessman, SW SE Sec. 24-16-9 ... Shut down 900 ft.

NESS COUNTY

Gypsy Oil Co.'s No. 1 Coleman, C SW NE Sec. 25-17-25w .. Fishing 4,160 ft.

NORTON COUNTY

Richards et al's No. 1 Colby, Sec. 17-4-21w ..... Rig.

OSAGE COUNTY

Briggs & Smith's No. 1 Wood, SE NW Sec. 21-14-15 .... Drlg. 1,425 ft.

RAWLINS COUNTY

J. G. Durham et al's No. 1 Unknown, SW cor. Sec. 3-2-35w ..... Drlg. 2,433 ft.

RICE COUNTY

Detrick & Langston's No. 1 Purcell, NW cor. Sec. 33-19-9w ..... Rig.
McFadden and Sheil's No. 1 Jennings, SW NE NW Sec. 29-18-6w ..... Shut down 1,370 ft.
Cress et al's No. 1 Sharp, SE NE Sec. 13-20-10w ..... Underreaming 8-in. csg. 2,568-70 ft.; water.
Allison-Fitzwilliams' No. 1 Blake, NE NW Sec. 9-18-10w .. Rig.
Muth Bros.' No. 1 Beyers, NE NW Sec. 21-19-9w ..... Silicious lime 3,213-44 ft.; swabbed 134 bbls. 8⅝ hrs.

RENO COUNTY

Shell-Continental's No. 1 Blake, SW SE SE Sec. 23-23-4w. Rig.

ROOKS COUNTY

Empire Oil & Ref. Co.'s No. 1 Halsman, SW NE SE Sec. 17-7-20w ..... Underreaming 12-in. csg. 1,525 ft.

RUSH COUNTY

Dewey & Mitchell's No. 1 Greenawalt, C SW Sec. 17-19-16w ..... Drlg. 1,005 ft.

RUSSELL COUNTY

Agate Oil & Gas Co.'s No. 1 Rochfellow, SE cor. Sec. 6-13-12w ..... Show oil 3,042-44 ft.; bailed 18 bbls. 3 hrs.; drlg. 3,100 ft.
Gilbreath et al's No. 1 Bratton, C NE Sec. 33-11-13w .... Shut down 2,814 ft.

SEDGWICK COUNTY

Streeter & Stearns' No. 1 Tobin, SW SE NE Sec. 5-22-2 .. Viola 3,315-17 ft.; water; shut down 3,352 ft.
Buck et al's No. 1 McNanaman, NE NW NW Sec. 2-29-1.. Shut down 1,235 ft.

SALINE COUNTY

Stanolind Oil & Gas Co.'s No. 1 Martin Com., NE SE SE Sec. 3-16-3w ..... Cellar.
Sampson et al's No. 1 Sudendorf, NE SE Sec. 30-14-2w .. Drlg. 3,450 ft.
Twin Mounds Oil Co.'s No. 1 Weis, C W half NE NW Sec. 20-13-4w ..... Shut down 2,700 ft.

SHERIDAN COUNTY

Flo et al's No. 1 Shoemaker, SE SW SW Sec. 27-7-26w... Drlg. 450 ft.

STEVENS COUNTY

Sidwell et al's No. 1 Kelly, SW NE Sec. 16-34-38w ..... Drlg. 2,633 ft.

WASHINGTON COUNTY

Sincox et al's No. 1 Penwell, NW SE NE Sec. 16-3-3 .... Shut down 1,720 ft.

CALIFORNIA FIELDS

(Continued from Page 48)

covery well in the North Belridge Field of Kern County, which came in flowing 2,750 bbls. several months ago, has consistently built up until it is producing 4,825 bbls. This increase has been accomplished without any substantial increase in gas produced. Present production of natural gas approximates 20,775,000 feet, from which was recovered yesterday 11,762 gallons of natural gasoline. The Union Oil Co.'s No. 17 Belridge in Section 36-27-20 has all the earmarks of substantial production upon completion as approximately 500 feet of Temblor production has been encountered. This well has shown a well-saturated oil sand since the top of the Temblor was encountered and gas pressure has been consistently building up. Belridge Oil Co. is drilling four wells in this field and is rigging up another, No. 49, in Section 35-27-20 for early spud. All operators in the North Belridge Field, with the exception of the Belridge, have agreed not to start any additional wells prior to May 1 in hope that some definite program can be worked out whereby production can be kept to a minimum. George F. Getty Co., Inc., has about completed preliminary preparations for a production test on No. 1-A Lincoln Drilling in Section 12-26-20 which may be given a chance to make a bid for production within a day or so. Gas traps have been rigged up and flow lines connected as a precautionary measure as the test will be primarily to determine whether a satisfactory water shut-off has been effected. Universal Consolidated's No. 49, also in the Lost Hills section of Kern County, was wet again and will consequently require further work. E. J. Miley and F. B. Langstroth have material on ground for two new wells at Blackwells Corners, a few miles northwest of the Lost Hills Field, and an early spud is contemplated. This area, both in Section 14-26-19 and Section 17-26-19, warrants exploration work.

The Shell has not yet completed the production test started on its No. 1 Williams, a wildcat in the Semitropic area of Kern County, last week, and will continue further work. This wildcat, bottomed at 9,700 feet with 5¾-inch casing landed and cemented at 8,575 feet, looked wet on the preliminary test as the fluid rose 2,000 feet during the first 20 hours after the cement was drilled out. It has not been definitely decided whether this was due to formation water or a defective shut-off. In the Weed Patch area of Kern County, where the Shell is believed to have discovered a new oil field several months ago, preparations are being made to start additional wells. Osborn & Colter are moving in material to start a new well on the Shell-Duff lease in Section 15-30-29, while Alpine Oil Co. is rigging up No. 1 DiGiorgio in Section 13-31-29. Recent developments based on partial correlation indicate the probability that the apex of the Weed Patch or Mountain View Field is located northwest of the discovery well. This has just been supported by the fact that the Shell's No. 1 Porter, 1,200 feet southeast of the discovery well, No. 1 Porter Day, failed to pick up the first horizon encountered in the latter despite the fact it is considerably deeper. No. 1 Porter Day, which revealed a potentiality of 2,500 bbls., is being carried down in search of a third productive horizon, the present depth being reported as 7,675 feet. The Prairie Oil & Gas Co. has abandoned its deep test, No. 1 Sexton, a wildcat about 1 mile east of the Ventura Avenue Field, as a duster at 8,800 feet.

OKLAHOMA FIELDS

(Continued from Page 34)

company's No. 1 Burton, NW cor. SE NW, Section 30-1s-2w, a quarter of a mile southeast of production, was shut down waiting for surface casing cement.

The Texas Company's No. 6 Eaves, NE cor. SW SW, Section 24-1s-3w, has resumed drilling operations at 160 feet where the surface casing was cemented.

Important Test a Failure

The wildcat test drilled by J. E. Crosbie and W. J. Martin, No. 1 Brown, NE cor. NW SW, Section 2-9-4, in northeastern Pottawatomie County, found salt water in the Wilcox sand from 4,579-85 feet and may be abandoned. The test has created considerable excitement in the area for the last few days when it found a showing of oil from 4,179-81 feet, and many expressed the belief it would open another producing area in the Greater Seminole group. A core test was taken and it revealed 400 feet of water in the hole. The well is located between Earlsboro and Shawnee.

During the week disappointments were reported from the Wewoka Townsite Pool, in Seminole County. Burke-Greis Oil Co.'s No. 3 Henshaw, NW cor. NW SW, Section 30-8-8, found the Wilcox sand dry at 4,116 feet. It is believed the hole is slightly crooked and reaming is to be started. Droppleman Drilling Co. and others' No. 1 A. Johnson-Lack, SW cor. SE NW, Section 30-8-8, had a hole full of salt water at 3,787 feet in Wilcox sand and may be plugged back to test a showing found in the Hunton lime.

Deep Rock Oil & Refining Co.'s No. 2 Douglass (10 acres), NE SW NE, Section 30-8-8, had Wilcox sand 4,210-20 feet where a hole full of water was found. It will be plugged back to the Hunton at 4,052 feet where it pumped 60 bbls. of oil a day.

Greater Seminole Production

The production from the Greater Seminole area for the week ending March 9 average 177,077 bbls. a day from 2,860 wells. The first 12 pools listed below comprise the Seminole area which averaged 115,903 bbls. of oil a day from 1,865 wells.

Pool—	Wells	Bbls.
Little River	370	15,709
East Little River	82	7,240
Carr City	81	10,110
Maud	131	2,634
Mission	92	4,304
Bowlegs	276	9,253
Earlsboro	282	18,205
South Earlsboro	27	7,084
East Earlsboro	157	17,543
Seminole	254	15,777
East Seminole	33	2,277
Searight	80	5,767
Total	1,865	115,903
Allen	278	14,872
Wanette	56	6,126
Asher	26	703
Konawa	110	12,642
Sasakwa	50	2,473
St. Louis	475	24,358
Grand total	2,860	177,077

Oklahoma City Shipments

The total shipments from the Oklahoma City Field for the week ending March 9, were 679,588 bbls. of oil from leases. The pipe line shipments from storage were 22,663 bbls. Tank car shipments from the area were 34,490 bbls. being shipped in 159 tank cars. The shipments by companies were as follows:

Company—	Bbls.
Anderson-Prichard	104
Champlin	1,825
Crude Oil	2,436
Empire	17,234
I. T. I. O.	7,276
Magnolia	3,011
Oklahoma	11,862
Peacock and Peveto	145
Operators	3,437
Prairie	859
Sheil	1,301
Sinclair (to storage)	9,676
Sinclair-Texas	3,502
Standish	1,408
Stanolind	23,091
Slick	8,135
Tidal	1,186
Wilcox	596
Total	97,084

Oil purchased from storage was as follows:

Purchaser and seller—	Bbls.
Sinclair-Texas, Sinclair	3,621
Stanolind, I. T. I. O.	460
Oklahoma, I. T. I. O.	1,885
Sheil, I. T. I. O.	2,141
Magnolia, Slick	264
Stanolind, Slick	9,004
Empire, Operator	3,203
Tidal, Operator	2,075
Total	22,663

Greater Seminole Shipments

The pipe line shipments from the Greater Seminole area totaled 174,660 bbls. a day for the week ending March 9. The daily average shipments by companies were as follows:

Company—	Seminole (bbls.)	Asher, St. Louis (bbls.)	Konawa (bbls.)
Barnsdall	3,186	....	....
Champlin	3,368	....	....
Consolidated	....	2,592	....
Cosden	5,515	....	2,771
Deep Rock	1,943	1,601	....
Empire	6,041	....	....
Gulf	16,611	3,397	454
Magnolia	8,554	8,077	2,401
Oklahoma	15,402	840	137
Prairie	5,334	5,149	401
Prod. & Ref.	1,546	....	....
Pure	9,185	....	....
Sheil	5,940	189	1,193
Standish	1,023	....	....
Stanolind	18,828	8,845	3,980
Texas	9,287	1,622	1,779
Tidal	7,898	3,109	....
Total	119,657	35,430	13,871
Tank cars	5,302	400	....
Grand total	124,959	35,830	....

Oklahoma City Production

The following wells were on production during the seven days ending March 9, in the Oklahoma City Field, under proration. All other wells were shut in and will be produced according to the curtailment plan.

OKLAHOMA CITY POOL

	S-T-R	Wells	Prod.
Anderson-Prichard:			
Gibbons	1-11-3	5	673
Graham	2-11-3	1	84
Roosevelt Place	2-11-3	5	2,356
Brown et al	14-11-3	1	147
Blackwell-Jones Drlg.:			
Sullivan	1-11-3	1	81
British-American:			
Holmes	10-11-3	7	2,324
Champlin:			
McCulip	2-11-3	1	760
Naden	2-11-3	1	813
Coline:			
Clour	23-11-3	16	1,050
Warren	18-11-2	3	291
Continental:			
Sudik	6-10-2	4	245
Vinita Park	2-11-3	2	152
Cromwell-Franklin:			
T. Park	13-11-3	32	5,317
Eason et al:			
Lively	15-11-3	1	281
Empire:			
Gustine	1-11-3	2	61
Hall-Briscoe:			
Muller	2-11-3	1	496
Heenan-Coe:			
Cunningham	1-11-3	2	260
I. T. I. O.:			
Barker, Drake	14-11-2	1	378
Bodine, A.	24-11-3	6	22
Bodine, S.	30-11-2	3	5
Brokaw, C.	13-11-3	4	681
Butterfield	11-11-3	1	36
Button	19-11-2	5	76
Canfield, L.	19-11-2	2	10
Carrico	14-11-2	5	870
Coppinger	11-11-3	8	435
Corff	11-11-3	5	287
Drake	14-11-3	2	191
Eacock	11-11-3	2	177
Emmerson, N.	30-11-2	11	391
Farley, E.	24-11-3	1	113
Farley, L.	19-11-2	4	534
Farley, Fuzzell	19-11-2	2	833
Ferndale, Comm.	11-11-3	5	1,763
Foster	24-11-3	1	4
Fox	14-11-3	1	260
Funk	11-11-3	1	313
Fuzzell, M.	19-11-2	3	11
George	7-11-2	1	10
Habegger	14-11-3	3	573
Hammer	11-11-3	2	334
Handl	11-11-3	1	32
Hiddleston, S.	19-11-2	1	398
Huffman	14-11-3	3	235
Ivanhoe	15-11-3	2	390
Johnson	26-11-3	9	498
Jones, H. W.	1-11-3	4	881
Jones	31-11-2	14	674
Jones, Comm.	1-11-3	4	1,370
Knox, May	14-11-3	4	888
Lawrence Place	15-11-2	3	714
Lawton	11-11-3	2	71
Lindsey	15-11-3	1	60
Mid-Texas	23-11-3	1	256
M. K. & T.	33-12-3	4	1,169
Mt. Vernon Heights	15-11-3	1	18
Okla. S. Land	36-11-3	8	2,681
Pasadena Heights	14-11-3	5	485
Peterson, Sad	25-11-3	8	1,882
Precure, A.	11-11-3	1	700
Precure, E.	11-11-3	2	362
Reynolds	6-10-2	1	14
Salasman	32-11-2	5	46
Spannagle	15-11-3	1	951
Speegle, et al	24-11-3	3	118
Spillman	14-11-3	3	243
Starkey	11-11-3	2	378
Sudik	31-11-2	10	3,713
Theimer, E.	12-11-3	8	73
Trosper	13-11-3	11	1,002
Trosper, Clar.	14-11-3	4	213
Trosper, C. E.	11-11-3	1	219
Trosper, E.	14-11-3	2	414
Trosper, H. G.	14-11-3	7	114
Trosper, P.	18-11-2	1	77
Unsell, M.	23-11-3	6	612
Unsell-Krager	23-11-3	3	579
Viewpoint	10-11-3	4	2,107
Warden, M.	24-11-3	1	206
Waters	23-11-3	6	632
Warner, Farley	23-11-3	3	247
Wheeler	13-11-3	3	55
Wilkie-Ander.	25-11-3	3	56
Williams	23-11-3	1	47
Williamson, Can	24-11-3w	2	142
Julian:			
Houser	14-11-3	1	145
Kedberg:			
Burns	2-11-3	1	11
Mabee:			
Rusty	10-11-3	1	3,924
Mid-Kansas:			
Fortson	24-11-3	5	4
Mollman	23-11-3	4	585
Mid-Texas:			
Aungust	3-11-3	1	253
Minnehoma:			
Pugh	2-11-3	1	938
Oils, Inc.:			
Ross	2-11-3	1	2,883
Patton-Wilcox:			
Short	10-11-3	1	319
Phillips:			
Ball	3-11-3	1	615

(Continued on Next Page)

	S-T-R	Wells	Prod.
Ciger	2-11-3	1	839
Davis	10-11-3	1	1,494
Day	2-11-3	1	606
Hankins	2-11-3	1	370
Harrell	2-11-3	1	269
King	10-11-3	1	2,700
Lybrand	2-11-3	1	893
Roden	2-11-3	1	3,539
Unruh	2-11-3	1	1,361
Velt	2-11-3	1	774
Prairie-Slick:			
Hiddleston	19-11-2	7	246
Sigman	32-11-2	7	636
Reynolds, W. R.:			
Hasting	1-11-3	1	1,286
Russell:			
Roosevelt	2-11-3	1	293
Shaffer, J. C.:			
Childs	14-11-3	1	307
Shell:			
Petty	30-11-2	7	376
Sinclair:			
S. Land No. 54	36-11-3	16	2,987
S. Land No. 67	36-11-3	5	2,412
Stamper	30-11-2	6	29
Vencl	31-11-2	16	4,915
Skelly:			
Fields	10-11-3	1	857
Hoops	31-11-2	8	875
Skelly et al:			
Tanner	10-11-3	2	616
Ainsworth	10-11-3	4	839
Slick, T. B.:			
Bailey	1-11-3	1	717
Campbell	3-11-3	3	3,369
Central	3-11-3	1	113
Classen	2-11-3	4	4,601
Classen-Edwards	3-11-3	1	402
Daugherty	2-11-3	1	115
Foote	2-11-3	3	588
Foote-Briscoe	2-11-3	1	5
Glidden	13-11-3	2	18
Lard	2-11-3	1	1,484
Page	14-11-3	2	249
Thornton	15-11-3	1	69
Wespaco	34-12-3	1	2,208
Wilson	2-11-3	1	609
Slick et al:			
Atkinson	1-11-3	2	1,662
Baker	1-11-3	5	929
Clegg	2-11-3	2	267
Danreuther	2-11-3	3	634
Key	2-11-3	2	192
Miller	2-11-3	1	342
Milner	1-11-3	2	857
Rodman	2-11-3	1	26
Carter	1-11-3	1	798
Hoops	31-11-2	8	1,707
Slick-I. T. I. O.:			
Houston	2-11-3	1	120
Sun Ray:			
Donaven	34-12-3	1	2,171
Harris	2-11-3	1	217
Mead	34-12-3	1	461
Olafson	2-11-3	1	73
Twyford-Smith	10-11-3	1	741
Westgate Oil:			
Kelsey	10-11-3	1	95
Wirt Franklin:			
Holder	2-11-3	2	698
Lowery	12-11-3	10	6,486
Page	35-12-3	5	214
Page, Tucker	35-12-3	1	400
Shehan	2-11-3	2	281
Theimer	2-11-3	13	4,133
Wright	2-11-3	3	976
Wright-Smith:			
Smith	2-11-3	2	88
Total		734	127,365
Last week		731	174,486

New wells, 3. Increase 52,879 bbls. Average per well for pool, 173 bbls.

Carter County

Carter Oil Co. has the rig up for No. 1 Robb, NW cor. SW NW, Sec. 19-1s-2w.

Comanche County

Oklahoma Natural Gas Corp.'s No. 1 C. Doegel, SW cor., Section 3-3-9w, has been abandoned at 1,450 feet. Pace and others' No. 1 Pruitt, C SW SE, Section 8-1-9w, is dry and abandoned at 2,042 feet.

Cotton County

Shasta Oil Co.'s No. 1 J. Tilley, CNL NE NE, Section 23-1s-10w, has been abandoned at 2,510 feet.

Creek County

Pioneer Petroleum Co.'s No. 15 Buck-trot, SE cor. NE, Section 24-17-10, is drilling at 1,350 feet. Murta and others' No. 4 Wilson, NE cor. SE SW, Section 32-17-12, is spudding. Wilrough Oil Co. has the rig up for No. 1-A Stewart, SW cor. NW NE, Section 32-17-12.

Grady County

J. B. Nichols' No. 1 Childs & Gardner, NE cor., Section 35-4-8w, is rigging up. Badgett & Cooper's No. 1 Milner, NW cor. SW, Section 24-4-8w, has been completed for 10,000,000 feet of gas in sands 2,015-2,300 feet. Meridian Gas Co.'s No. 1 Skelly-Snodgrass, CSL NE NE, Section 36-4-8w, made 500,000 feet of gas from sands 2,060-2,315 feet.

Hughes County

Gilcrease Oil Co.'s No. 1 Buckner, NE cor. NW SE, Section 17-7-9, is dry and abandoned at 3,755 feet.

Haskell County

Indian Territory Illuminating Oil Co.'s No. 1 Holleman, C SW NE, Section 23-11-21, is rigging up. Enterprise Natural Gas Co.'s No. 1 Phillips, NE cor., Section 10-9-18, is drilling at 200 feet.

Harmon County

Harmon Tex Oil Co.'s No. 1 Headley, NE cor., Section 17-4-24w, is dry and abandoned at 2,592 feet.

Jefferson County

O. B. Beck's No. 6 W. Sea, NW cor. SW SE, Section 34-6s-5w, made 175 bbls. from sand 1,500-20 feet.

Marshall County

R. L. McCrory and others moved a machine in for No. 1 Little, NE cor. SW, Section 30-7s-6.

McIntosh County

J. S. Routt and others' No. 1 Eckols, CSL SE, Section 10-11-15, has been completed for 250,000 feet of gas in sand 375-95 feet.

Muskogee County

Mack Drilling Co. has a machine on the location for No. 1 M. Peterson, SW cor. NW, Section 34-16-15. C. W. Brown's No. 1-A V. Smith, SW cor. NW, Section 14-15-15, is rigging up. Mazda Oil Co.'s No. 1 L. Ingram, NW cor. NE SE, Section 9-15-18, is cleaning out to deepen from 1,016 feet. G. D. Robinson has a machine on the location for No. 1 S. London, CWL NE SW, Section 17-13-16. P. Boyle and others' No. 3 E. Ware, SE cor. NE SW NE, Section 14-15-15, has been abandoned at 1,510 feet. C. D. Bradley's No. 1 J. Jacobs, NE cor. SE NW, Section 7-15-17, is dry and abandoned at 1,016 feet. W. J. Metzger and others' No. 8 C. Crittenden, SE cor. SW NE SE, Section 6-14-19, has been abandoned at 820 feet.

Noble County

Sinclair Oil & Gas Co. has the rig up for No. 2 Waltermire, NW cor. SW SE, Section 33-21-1w.

Oklahoma County

Sunray Oil Corp.'s No. 1 Donavon, CEL SW SW SE, Section 34-12-3w, has an estimated potential of 66,024 bbls., according to the field umpire, from Wilcox sand at 6,328-6,485 feet. R. A. McArthur and others' No. 1 Alfalfa Products Co., NW cor. SW NE NW, Section 3-11-3w, Oklahoma City Field, is a cellar. Reinhart & Donovan and others' rig is up for No. 1, Block 1, Lot 11, McCornack's Factory Addition, SW cor. NE NW, Section 3-11-3w. T. B. Slick estate is building the rig for No. 1 Terminal, NE cor. NW SE NW, Section 3-11-3w. H. F. Wilcox Oil & Gas Co. and Anderson & Kerr's No. 1 James, Block 4, Chapin-Levi Addition, CNL SW NW NW, Section 10-11-3w, is a cellar. Williams and others dug cellar for No. 1 Gunsenhauser, CNL NE NE SE, Section 15-11-3w. Anderson & Prichard's No. 4 Gibbons, CNL SE SE NE, Section 2-11-3w, has been completed for 1,362 bbls. in four hours from Johnson sand 6,354-6,447 feet. Phillips Petroleum Co.'s No. 1 Bouldinghouse, SW cor. NE NE NW, Section 10-11-3w, has been completed for 9,011 bbls. in four hours from Wilcox sand 6,326 feet, total depth 6,505 feet. Eason Oil Co. and others' No. 1 Lively, SW cor. NE NW SE, Section 15-11-3w, made 1,964 bbls. in eight hours from Wilcox sand topped at 6,445 feet, base 6,490 feet and total depth 6,493 feet.

Okmulgee County

Denton & Marshall moved a machine in for No. 1 P. Rentie, SE cor. SW SE, Section 5-14-14. No. 1-A Rentie, CWL NW SW, Section 13-14-14, is dry and abandoned at 2,383 feet.

Pittsburg County

Midwestern Oil & Gas Co.'s No. 2 Trekell, SE cor. NW NE SW, Section 14-7-18, has been completed for 22,961,000 feet of gas in sand 1,849-1,960 feet.

Pottawatomie County

Gypsy Oil Co.'s No. 4 Horn, NE cor. NW NE, Section 23-6-3, West Asher Pool, has been completed for 1,257 bbls. in sand 3,465-90 feet, total depth 3,494 feet. Magnolia Petroleum Co.'s No. 1 Harris, NW cor. SW, Section 6-6-4, is rigging up.

Seminole County

Magnolia Petroleum Co.'s No. 1 Harjo Reed, SE cor. NW NW, Section 2-8-5, Carr City Pool, has been completed for 480 bbls. in Wilcox sand 4,167-77 feet. Pace Petroleum Co.'s No. 1 Townsite, SW cor. SE NE, Section 30-8-8, Wewoka Townsite Pool, made 8 bbls. in sand 3,228-40 feet. Gypsy Oil Co.'s No. 2 Charty, SE cor. SW, Section 29-6-6, Konawa Pool, has been abandoned at 2,624 feet.

Osage County

The Prairie Oil & Gas Co.'s No. 1, SE cor. NW SE, Section 11-24-6, has been abandoned at 412 feet.

Stephens County

George Pace and others' No. 1-C Bush, NE cor. SE NW, Section 3-2s-8w, is a rig. Smythe and others' No. 2 House, NW cor., Section 29-2-8w, has been abandoned at 2,800 feet. Junior Oil Co.'s No. 1 Thompson, NE cor. SW SE, Section 1-1-7w, is a dry hole at 3,329 feet. George Pace's No. 5 Bush, SW cor. SE NE SW, Section 3-2s-8w, has been completed for 15 bbls. in sands 1,637-43 feet and 1,643-51 feet. No. 8 Watkins, SW cor. SE NE SE, Section 21-2s-7w, made 400 bbls. in sand 1,722-27 feet. No. 9 Watkins, NW cor. NE SE SE, Section 21-2s-7w, has been completed for 300 bbls. in sand 1,716-27 feet. The Texas Company's No. 1 Toney, SE cor. SW NW, Section 27-2s-7w, has been completed for 10 bbls. in sand 1,498-1,503 feet. Cooper and others' No. 1 Duncan, NW cor. NE, Section 28-2s-7w, is a dry hole at 1,699 feet. Head & Couch's No. 1 Wilson, NW cor. SW, Section 2-2s-5w, has been abandoned at 1,915 feet. Morrison and others' No. 2 Hightower, NE cor. SW NE, Section 15-3s-5w, made 17,000,000 feet of gas from sands 920-25 feet and 935-50 feet. A. L. Andree's No. 1 Patrick, C S half SE, Section 3-3s-8w, has been abandoned at 2,759 feet.

Tulsa County

McDonald and others' No. 1 Wolfe, SE cor. NE, Section 24-16-13, is rigging up to deepen from 1,651 feet.

Wagoner County

E. C. Peebles and others' No. 1 Chissoe, NE cor., Section 34-17-15, is drilling at 460 feet.

SOUTHWEST TEXAS

(Continued from Page 42)

have been completed. S.R.C. Oil Corp.'s No. 5-D Montemeyer in Survey 64 at the north end of the field at 1,318 feet, the producing horizon of the pool, showed oil and salt water.

Still farther north in Survey 413 and out of bounds of the proven area S. T. Phelps' No. 2 Garzo in Block 2 is down 1,780 feet and with the exception of some minor showings has had nothing. It is a mile or so north of the pool.

Eastern Bexar County

Ueckert and others' No. 1 Palfrey, a little southeast of San Antonio, at 1,814 feet and in the Edwards lime, has been standing idle for weeks while nearly everyone who had anything to do with the test had the influenza. Now they are over the influenza and getting ready to start up again. The interesting feature is that it seems to be located on structure and showing some gas and there is a possibility it may make something when they complete it. It is worth watching.

Corpus Christi Area

In the Saxet Field west of Corpus Christi some further completions at around 4,000 feet are due. This sand was discovered late last year. Houston Oil Co.'s No. 2 Ran Morgan, a quarter of a mile east of the same company's No. 1 Joe Hunter, has a saturated sand at 4,078 feet and No. 1 Joe Hunter made a 200-bbl. well at 4,079 feet. Moody-Seagraves Producing Co.'s No. 1 Sedwick in the Saxet area is down 3,526 feet and will be in the 4,000-foot sand shortly. Saxet Oil Co.'s No. 7 Dunn is coring at 4,085 feet.

In the Agua Dulce Field in western Nueces County Houston Oil Co.'s No. 1-B Ollie Purl is still drilling at 5,440 feet, having passed all known producing horizons in that pool in order to find out what other sands are there.

Simms Oil Co. had a little bad luck in No. 2 Holzmark. It has finally been abandoned. No. 1 Holzmark opened a new pool 15 miles south of Pettus. No. 2 got the same sand but tried to explore deeper and later when they tried to plug back they made a failure of it and have abandoned the test.

Medina County

National Oil Co. has gone back to its No. 1 Howard in Medina County, a little east of the Adams gas field. The test was carried to the Edwards, topped at 2,434 feet, and was carried 199 feet in to a total depth of 2,633 feet. It is being plugged back to 1,625 feet where it had quite a lot of oil and it is believed can be completed for a small well.

GENERAL VIEW OF THE AJAX PIPE LINE CO.'S PUMP STATION NEAR SPRINGFIELD, MO.

Main pump-house, manifold, tool-house and fuel tanks are shown.

LUBRICATION FROM THE ENGINEERING VIEWPOINT

(Continued from Page 30)

on the choke before turning off the ignition is one of the popular tricks to help cold starting the following morning. The beneficial effect of moderate crankcase dilution is also one of the reasons why some automobile companies do not like to recommend frequent crankcase draining, especially in the winter time. When an undiluted oil is put into the crankcase in winter it may take from 25 to 50 miles of driving before the oil is sufficiently diluted to make the oil thin enough for cold starting or circulation at low temperatures. One of the possible solutions to this problem is the use of prediluted oils. Another solution is the use of oil coolers or "oil temperature regulators" as they are more properly called. By the use of oil coolers the maximum oil temperature reached in service is reduced, and, as a result, the viscosity of the oil under high speed driving conditions does not decrease so much. This permits the use of an oil that is much lighter in viscosity than would be practical without the oil cooler. Figure 4 illustrates this point.

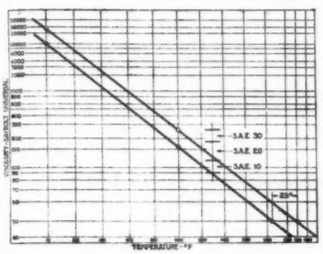

Figure 4—Effect of temperature on viscosity.

If we should assume that under high speed driving conditions the maximum oil temperature without an oil cooler is 210° F., and if under these conditions we used a paraffin base oil with a viscosity of 50 at 210° F. and 250 at 100° F., it would be found that the viscosity of this oil at 0° F., would be 26,000 seconds. If by the use of an oil cooler the maximum temperature under high speed conditions should be reduced only 25° to 185°, then with the same viscosity of 50 at the maximum oil temperature, the viscosity of the paraffin base oil would be only 160 at 100° F. instead of 250 and the viscosity at 0° would be only 10,500 instead of 26,000.

Regardless of how important an oil cooler may be to limit the maximum temperatures for summer driving, it is apparent that an oil cooler is equally important in its effect on cold starting in winter. Another advantage to be derived from the oil temperature regulator in winter is the rapid warm-up of the oil that it makes possible. By the use of thermostat or shutters the temperature of the jacket water may be raised very rapidly. By transferring some of this heat to the oil by means of a suitably designed oil temperature regulator, the time required to obtain sufficient fluidity of the oil for distribution and circulation throughout the lubricating system may be greatly decreased, and in this respect also, the oil temperature regulator is a valuable winter lubricating device.

In this discussion of oil coolers it may appear that the subject of lubricants is being neglected, but a consideration of lubrication involves both the oil and the engine. The two subjects are just as closely related as a gun and a bullet. From an actual standpoint a lead bullet that fitted the gun would be of much greater value than a solid gold bullet that did not fit the gun. In a similar manner, the oil and the engine must be suited to one another, and it is of little use to try to evaluate the quality of an oil without considering at the same time the engine and the service conditions.

Oil tests in general are of value to help determine the identity of an oil or to check it for uniformity in different shipments. For many years the importance of having the oil suited to the engine and operating conditions has been recognized. The S.A.E. viscosity numbers, which are now in such general use for automobile engine lubricants, are the result of the recognition of this fact. Lubricants for transmissions and rear axles are almost as important as engine lubricants, but until quite recently there was no generally recognized method of recommending them. The practice of the oil companies of putting small amounts of soap in these lubricants to decrease leakage, further complicated the problem. Since these lubricants containing small amounts of soap could not be classified and the desirable ones distinguished from the undesirable ones, many of the automobile companies warned the public against all such lubricants. However at the last meeting of the Society of Automotive Engineers, a system of S.A.E. viscosity numbers by which transmission and rear axle lubricants could be classified and recommended was adopted. It is like the system in use for engine oils in that it classifies the lubricants according to viscosity, and leaves the responsibility, for other factors affecting quality to the oil company supplying the lubricant. This system is very rapidly coming into general use. If the oil companies will co-operate with the automobile companies by instructing the men at the filling stations and by suitably marking their lubricants the men at the filling stations will know which ones of their trade-marked lubricants should be supplied to meet the various recommendations of the automobile companies.

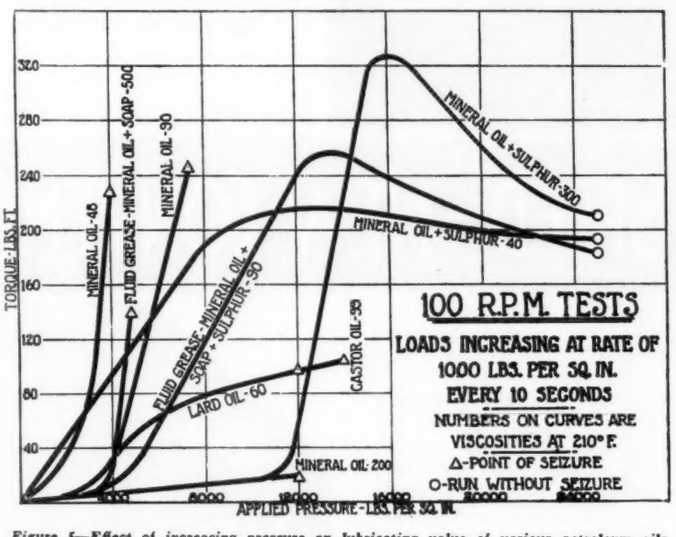
TORQUE-LBS.FT.
APPLIED PRESSURE-LBS. PER SQ. IN.
MINERAL OIL-45
FLUID GREASE-MINERAL OIL + SOAP-500
MINERAL OIL-90
MINERAL OIL + SULPHUR-300
MINERAL OIL + SULPHUR-40
FLUID GREASE-MINERAL OIL + SOAP + SULPHUR-90
LARD OIL-60
CASTOR OIL-30
MINERAL OIL-200
100 R.P.M. TESTS
LOADS INCREASING AT RATE OF 1000 LBS. PER SQ. IN. EVERY 10 SECONDS
NUMBERS ON CURVES ARE VISCOSITIES AT 210° F.
Δ-POINT OF SEIZURE
O-RUN WITHOUT SEIZURE

Figure 5—Effect of increasing pressure on lubricating value of various petroleum oils and blends.

Fluid Film Lubrication

In the early part of this talk we discussed fluid film lubrication. When fluid film lubrication fails, the property of "oiliness" is important. It is a property that is not very well understood although examples of oils differing in "oiliness" are very common. "Oiliness" has been defined by Wilson and Barnard[5] as the property of lubricants by virtue of which one fluid gives a lower coefficient of friction than another fluid of the same viscosity, generally at low speeds or high loads. When operating in the field of fluid film lubrication, oiliness is of no value, but if the film should fail from too high a load or too low a speed an oil that has the property of oiliness may possibly prevent scoring or seizing. Wilson and Barnard[6] state:

"With the exception of the lubrication of the bands of a planetary transmission, it has not been definitely demonstrated that oil of high 'oiliness' is of any real advantage in the operation of an automobile engine. . . ."

Our experience is certainly in accord with this statement. Automobile engines will operate so well with oils which do not have any more "oiliness" than regular commercial motor oils that it is difficult to make a test with an automobile engine under normal operating conditions to show any possible advantage due to oiliness. However, under certain conditions with certain types of rear axles, oils with "oiliness" are necessary. In our laboratory, "oiliness" tests are made by determining the coefficient of friction of oils using a shaft of hardened steel with a hardened steel bushing, operating at 100 r.p.m. and gradually increasing the load from zero to 25,000 pounds per square inch if possible. The power required to turn the shaft in the bushing, plotted as beam load in Figure 5, is a measure of the coefficient of friction. With oils which have a viscosity of approximately 90 at 210° F. seizure will occur at about 7,000 pounds per square inch if the lubricants are deficient in "oiliness," but with lubricants which have enough of this quality the bearing will carry the full 25,000 pounds per square inch without seizing. We have been able to prevent seizing with "oily" oils as low in viscosity as 40 at 210° F. although if the oils do not possess this property of "oiliness" seizure on our test machine has occurred in all cases before 25,000 pounds per square inch was reached regardless of the viscosity, even though oils tested varied over the entire range of 40 at 210° F. to 300 at 210° F. This machine may be operated under a number of other conditions to show "oiliness," provided the necessary relations are maintained between viscosity, high load and low speed.

Heavy Oils

The S.A.E. system for classifying transmission and rear axle lubricants recognizes the difference between ordinary lubricants such as those in general use and the lubricants which will prevent scoring and seizing under extreme conditions. To distinguish these lubricants the classification E.P. signifying "Extreme Pressure" has been provided. The automotive industry and the oil industry are co-operating on this problem through committees representing the technical societies and the Bureau of Standards. It is hoped that within a short time the factors involved will be known, at least to the extent that these "E.P." or extreme pressure lubricants can be made and distributed wherever they may be needed. It is evident that the general use of automobiles requiring any certain type of lubricant or other petroleum product must follow instead of lead the general distribution of the special product.

Since motors, axles, and transmissions are lubricated by means of a fairly large supply of lubricant which is used over and over again, the question of stability is important. During use the lubricant should not change in composition or properties so greatly as to be unsatisfactory. The change in viscosity with temperature has been mentioned as one change that occurs in service with all oils. The change in gravity, flashpoint, firepoint, volatility and viscosity as a result of fuel dilution are other examples. Sometimes soaps which are added to oils to increase the viscosity or lower the pourpoint lose their ability to produce these effects after the oil has been in use for a short time in the engine, transmission or rear axle. The color of a motor oil changes very rapidly during use, and many other changes in service could be mentioned. Oxidation of motor oils occurs in service and delicate tests to show small differences in resistance to oxidation have been suggested as tests to measure quality.

If the changes which occur in service are such as to interfere with the suitability of the lubricant for the purposes for which it is intended, then tests to measure stability in these respects may be of value in estimating quality, but if the changes are not of this magnitude and the performance of the oil in service is not injured, the net result of the application of stability tests may be to restrict the supply and to increase the cost.

The importance of stability should be interpreted in terms of actual service. The formation of carbon deposits in engines formerly worried the automobile owners very much but the general use of fuels with improved antiknock properties makes this problem of less importance at the present time. However, the tendency of automobile manufacturers to increase compressions may again make this problem very important. As another possibility carbon removers may be the solution of this problem when and if it arises in the future.

In this talk we have not paid much attention to such tests as gravity, flash, fire, color, emulsion, oxidation, etc. Unless these tests are related to performance in service, their principal use is for purposes of identification, or for controlling refining operations. By the use of S.A.E. viscosity numbers, a car owner can request, and the filling station attendant can furnish, oil of the proper viscosity and consistency. The quality of the lubricant, so far as other factors are concerned, depends upon the integrity and ability of the oil company supplying the lubricant. From the standpoint of the automobile industry, we believe that if the car owner can obtain lubricants of the proper consistencies at the different temperatures for the different uses, we can depend upon the oil industry to maintain the necessary quality and to keep trying to make the desired improvements.

[5] R. E. Wilson and D. P. Barnard, "The Measurement of the Property of Oiliness," Journal Society of Automotive Engineers, Vol. 2, page 143, 1922.

[6] R. E. Wilson and D. P. Barnard, "The Significance of Various Tests Applied to Motor Oils," Proceedings American Society for Testing Materials, Vol. 28, Part 2, page 684, 1928.

DRAKE WELL PARK BILL PASSES PENNA. HOUSE

TITUSVILLE, Pa., Mar. 14.—One of the initial steps toward the creation of a Drake memorial park was partly completed at Harrisburg Wednesday when the bill presented by Major A. R. Wheeler of Endeavor passed the House and was made ready for the Senate.

The bill provides for the State to take over and maintain the park which will be established at the Drake well site by the American Petroleum Institute.

A fund has been started here by public subscription to make possible taking over of the historic site. In order to have the American Petroleum Institute spend $60,000 in erecting buildings and beautifying the site it will be necessary for people of this vicinity to secure land around the well and to have the Wheeler bill adopted. It will also be necessary to have the county commissioners of Venango County appropriate the money for improving a half mile of highway into the well.

SYMPOSIUM ON FUELS

Chemistry is delving into the intimate mechanism of combustion, using all the new tools of the age, Dr. G. St. J. Perrot, superintendent of the Pittsburgh Experiment Station, United States Bureau of Mines, declares in announcing a national symposium to be held in connection with the eighty-first meeting of the American Chemical Society at Indianapolis, Ind., March 30 to April 3.

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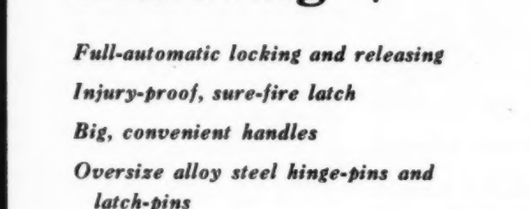

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Van Development An Object Lesson

Operators in Rusk-Gregg Area and Surrounding Territory in East Texas Shown Right Way of Operating Big Field

By James McIntyre

Whether the new oil field discovered in 1930 in Rusk County, Texas, and later extended into the adjoining Gregg County, is to be developed sanely like the Van Field, or insanely like the Wortham Field in Limestone and Freestone Counties, is now the most important matter before the oil industry of the Mid-Continent.

The extreme generosity of East Texas oil men in disposing of their high gravity oil at 35 and 40 cents per barrel and the fear that they will follow the example of operators in the Wortham Field and develop the territory regardless of the demand for crude oil or the price had much to do with the drastic reduction in prices posted this month.

In view of the large importance of the East Texas area it might be timely to remind operators in the Rusk-Gregg area how their brother operators developed the Van Pool in Van Zandt County, the two fields being in the same general producing area known in these columns as the East Central Texas Field. The story is told in detail in the March issue of Pure Oil News, house organ of the Pure Oil Co. From this article we will reproduce portions bearing on the method of operating the field on a unit basis.

A number of oil companies blocked out 17,000 acres in Van Zandt County in 1927. The block is about 10 miles south of the town of Grand Saline on the Texas & Pacific Railroad and approximately 25 miles northwest of Tyler on the Cotton Belt and Missouri Pacific railroads.

The Pure Oil Co. drilled the first well and definitely proved the existence of an oil field. The Pure Oil Co., Shell Petroleum Corp., Humble Oil & Refining Co., The Texas Company and the Sun Oil Co. entered into an agreement to operate the block on a unit plan, the Pure to do the operating. The announcement of the unit plan was a sad blow to real estate boomers, dancehall keepers and promoters of hot dog and hamburger stands, but was good news to the oil industry and the owners of royalty under the land to be operated. Had Van been operated in the helter-skelter way that prevailed in Wortham, Burkburnett and some other fields that could be mentioned its production would long ago have reached a peak of production so great as to have swamped the industry and perhaps been the means of breaking up the curtailment agreements in fields like Oklahoma City and Yates. Operated as it has been, the production of the field has been kept down to a nominal figure. Its highest recorded average daily production for any month in 1930, according to The Oil and Gas Journal's production figures was 27,614 bbls., and in the week ending March 1 unit operations known as the Van Joint Account produced an average of 24,598 bbls. from 172 wells, an average of 143 bbls. per well per day, while the wells outside the joint account produced 6,419 bbls. from 39 wells, an average of 165 bbls. per day. The field produced 31,007 bbls. per day from 211 wells, an average of 147 bbls. per well per day.

The article in the Pure Oil News on the Van unit says in part:

"The development of a unit such as that at Van has the net result of preventing actual physical waste, of producing the oil in an orderly way and at a rate which has a direct relationship with the demand for its use.

"The whole organization of the Pure Oil Co. has had to face new problems at Van in which there were almost no precedents to guide them. These involve geology, engineering, accounting, law and nearly every aspect of the production of oil. The work has been carried on without friction with the approval of an operating committee made up from representatives of the interested companies, and since October, 1929, when the discovery well was drilled, 150 other wells have been drilled on the unit block.

Conservative Drilling Plan

"This drilling campaign has served to outline roughly the limits of the field within the block and has also developed the fact that the producing area extends northeastward outside of the block and a short distance to the southwest outside of the block. These extensions are still inside the original block taken by the Pure Oil Co. The extension to the northeastward has been called the Carroll district, and here the Pure Oil Co. is well represented. The extension to the southwest is entirely on Pure Oil Co. property. Since the Van unit block is being operated under what is known as the Van Joint Account, the discoveries outside the block made it necessary to establish another office in the Carroll district to take care of outside properties.

Production From Woodbine

"The producing sand at Van is the Woodbine, which is well known in East Texas as it is the producing horizon along the Mexia Fault Zone where the old fields of Mexia, Wortham and Powell are still producing. The Jarman discovery well hit the Woodbine sand at 2,610 feet and was at first carried to a total depth of 2,710 feet which took it 100 feet into the Woodbine. In this 100 feet there was 60 feet of pure quartz sand, well saturated with oil. At that time the possible existence of water at a greater depth prevented further drilling. As the field has been developed, a definite water level has been established and the development to date has shown a far greater thickness of pay sand than was at first considered possible, many wells having from 200 to 400 feet of saturated sand.

"In order to keep proper records and to have the results of geological examinations available for the field, a geological laboratory was established where the examination of cores and samples from drilling wells has gone forward. This work has served particularly as a guide for the setting of casing. The cores collected and stored in a building adjacent to the geological laboratory form an impressive exhibit of the Woodbine sand. To see 50 or 60 feet of brown saturated oil sand laid out in boxes, end on end, representing part of the pay from one of the wells, gives one a vivid picture of the great thickness of pay which lies at the relatively shallow depth of 2,700 feet.

Drilling and Production Methods

"All wells are drilled with a rotary and usually take about 30 days, although some have been drilled in a much shorter time. A 9-inch hole is drilled to the top of the sand, where 7-inch casing is set. Each well is equipped with valves and pipe connections above the derrick floor, in accordance with the best practice developed by our production engineers. To the uninitiated many of these connections are a mystery. A production man on the ground refers collectively to the pipes and valves placed on the well as the 'Christmas tree.' This description is well applied where production such as at Van is obtained. In addition to the flow valves through which the oil is produced, two recording pressure gauges are in evidence, one for taking the pressure in the casing, and the other in the tubing. Another important instrument is the thermometer, which is so placed that the temperature of the oil coming from the well can be read at any time.

"After a well has been drilled into the sand and the liners have been placed in position, 2½-inch tubing is run to the top of the sand and the first flow that the well is allowed to make is run through this 2½-inch pipe. Usually in order to clean the hole it flows for a short time into a pit or sump and as soon as clean oil appears it is turned into the tanks, first passing through a gas separator. All this is done with so little bustle and excitement that a visitor to the field might pass one of these wells without knowing that a new producer was being brought in.

"In accordance with practice established in the unit block, all wells in the fields are given their first test through an eleven-sixteenths-inch choke. This choke is essentially a section of pipe inserted in the flow line in the inside diameter of which is a hole eleven-sixteenths of an inch in diameter. The purpose of this restriction is to cut down the flow and bring in all the wells on the same basis. All the wells are brought in through this size of opening, which is roughly the size of a 10-cent piece, having a cross-sectional area of .37 square inch. When reports show that a great many wells throughout the main part of the field come in for 100 bbls. per hour or more through eleven-sixteenths-inch choke one is led to think of what these wells might produce if they were allowed to flow through the casing or through the large size connections that are found in other fields.

"After preliminary testing on eleven-sixteenths-inch choke, wells are further reduced and often choked down to openings as small as one-sixteenth of an inch, the majority being eight-sixty-fourths or one-eighth of an inch. This is done so that the total production will not exceed the capacity of the pipe lines and have an equal distribution over the field.

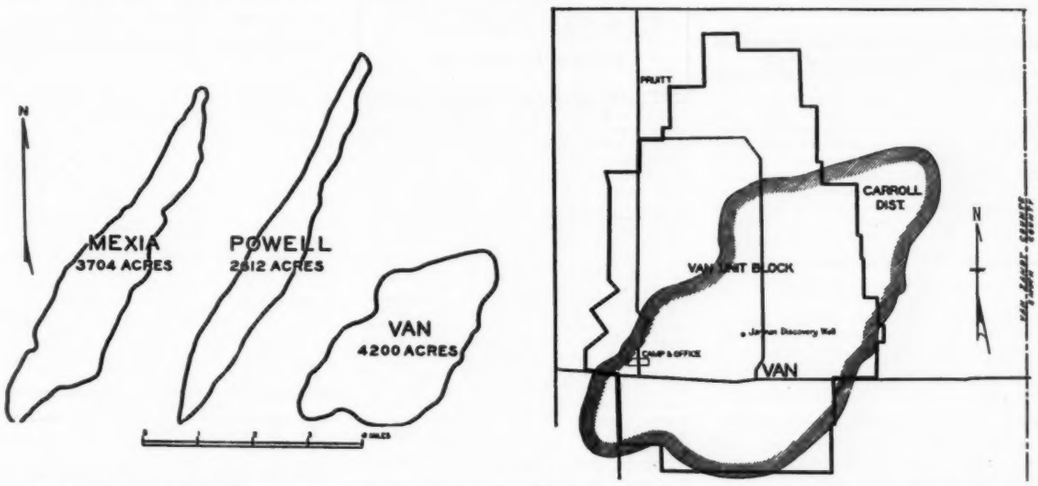
Comparison With Other Fields

"The Van Field, including the Carroll district and the extension to the southwest, is about 4½ miles in length. Throughout the middle it has a width of a little better than 2 miles, giving a total area outlined to date of 4,150 acres or 6½ square miles. The old Mexia Field was 7 miles long but had an average width a little over one-half mile, giving roughly a total area of 3,700 acres or 5.8 square miles. The Powell Field, 7½ miles long, was 4,000 feet wide at the center, tapering to a narrow point at each end, averaging possibly one-half mile in width and giving a total area of 2,600 acres or 4 square miles. These fields are mentioned for comparison because they are nearest to Van and also because the production there comes from the Woodbine sand. Van is about 50 miles from the Powell Field.

"A comparison of Van with these fields can not be made unless sand thickness is included in the discussion. As everyone knows, Mexia and Powell were wonderful producers, and when we investigate the actual thickness of pay sand we are surprised to find that Mexia has produced from 20 to 30 feet of good sand in a Woodbine section made up mostly of shale. The production at Powell is obtained from 50 to 60 feet of clean sand. Van has many wells which have cored 200 or 300 feet of pay sand in a Woodbine section 500 or 600 feet thick.

"These comparisons lead us directly to the question, 'What may Van be expected to produce?' There are two forms to this question: First, what will be its ultimate production per acre? Second, what would the wells drilled to date produce if they were opened up and allowed to flow through the casing, as is done at Oklahoma City and other fields, to obtain figures for establishing a potential for proration purposes? Considering the first, we know that in the Powell Field, where our McKie lease is still producing, the

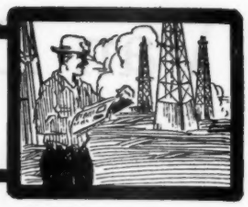
(Continued on Page 113)



On the left is shown the relative size and shape of the Mexia, Powell and Van Pools. On the right is shown the Van Joint Account unit block and an outline of the Van Field itself, which shows a considerable portion of the oil-bearing structure outside the block.

CLASSIFIED WANTS

Read by Oil Men Everywhere



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10 lines	3.50	6.00	8.50	11.00

Compute white space at the above rates.

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Mail your Classified Advertisement to

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

FOR SALE—EQUIPMENT

FOR SALE—2 No. 12 and 2 No. 11 Sweetland Filter Presses, some with monel leaves; 5 Sweetland Filter Presses, No. 9, No. 7, No. 2; 6 No. 4 Vallez Filters; 2 150 HP Fitzgibbons Boilers; 2 Skinner Unaflow Engines, direct connected to 2 200 KW Crocker Wheeler Generators, 125 to 250 volts. Installed three years; Miscellaneous Compressors, Storage Tanks, Pumps. Consolidated Products Company, Inc., 17-20 Park Row, New York City, Barclay 0600.

TANK CARS FOR SALE

8,000 gallons, for clean service. Inspection at our shop, Houston, Tex. Fifty ready for loading to any territory, giving free delivery to purchaser. sacrifice prices.
M. R. DUCEY
Box 223 Houston, Tex.

FOR SALE—Sullivan Size N Core Drill. Good condition. Price reasonable. Box 1048, Ponca City, Okla.

SLIGHTLY USED WESTCOTT and Foxboro Orifice Meters. Phone E. A. Herbig, 4-2191, Tulsa, Okla. Office, Hunt Bldg.

HAVE SEVERAL DIAMOND CORE DRILLS FOR SALE AT A LOW PRICE. Suitable for structural or shallow drilling. Write Box E-433, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE—Used Askania magnetometer. Perfect condition. Good as new. Will sell for $400. Box 342, Aberdeen, Miss.

APPROXIMATELY

20,000 other men either are, or have been right where you are now, DID THEY SEE YOUR AD?

A few lines telling them what you want will produce better and quicker results under Equipment Wanted than waiting for the other fellow to advertise it.

Try it, there's a rate card at the top of this column, display classified rates are on the opposite page.

FOR SALE—EQUIPMENT

100 OIL and gas engines for sale. Superior, Reid, Franklin, Foos, Black Bear and Primm 15 to 80 H.P. in fine order; new models, low prices. Edward A. Schambs, Jr., Box 868, Wichita Falls, Tex. Phone 6356.

12" STANDARD - WIELAND PIPE MACHINE, Complete, Excellent condition. 32"x22" Bradford Lathe, 5⅞" hole in spindle; taper attachment. Complete. 12"x10' Ingersoll-Rand Type ER1 air compressor, motor drive, complete. Also large stock of other machine tools. Five hundred machines in stock. Send for catalog. Terms to responsible parties.
CINCINNATI MACHINERY & SUPPLY CO.
26 West Second St. Cincinnati, Ohio.

EQUIPMENT WANTED

WANTED—Used 35 h.p., 4-cycle Superior gas engines, complete with clutches, priced right and in good condition. M. & V. Tank Co., Wichita Falls, Tex.

BUSINESS OPPORTUNITIES

20,000 to 30,000 Bbl. Well

I have acreage in NW 10-11-3, Oklahoma City field, big Wilcox area. Solicit inquiries from company or individual able to buy substantial interest in completed well. Write

Box 489, Shawnee, Okla.

HAVE EXPLORED LARGE FIELD containing gems, nonmetallics and prehistoric relics. Want party to join me in establishing title, to sell. No promoters. Excellent opportunity for large profits and permanent income. Address Manager, 511 North Second St., Phoenix, Ariz.

OIL located before drilling. Geophysical method. Toggodometer Instrument; take pay in oil. No oil, no pay, except traveling and testing expenses, 95 per cent accuracy. O. P. Coffin, Caddo, Tex.

DEEDED MINERAL interest spread covers 6 tracts one under 5,000 barrel well in Rusk County new field. Write for map. ¼ mineral rights 142 acres Bee County 1,200 feet from 450 barrel well $250.00 basis. 7,905.5 acres new 10 year paid up lease ¼ royalty same term Edwards County, Texas, in active line of play $1.25 acre. Stieren & Koenig, Alamo National Bldg., San Antonio, Texas.

BROKER co-operation wanted, handling S.E. New Mexico oil leases and oil royalties. We own or have for sale all classes and can furnish what your market demands. Monarch Inv. Co., Roswell, N. Mex.

GEOLOGICAL and production engineering advice for small operators given for $150 per month and up retaining fee depending upon the amount of work desired. By experienced geologist and production engineer thoroughly familiar with East Texas. You may have the benefit of our facilities and use our office as your Texas headquarters' address. Texla Geological & Production Engineering Co., 614 First National Bank Bldg., Dallas, Tex.

INVESTORS ATTENTION
We will care for substantial holdings of leases or royalties on a retainer basis. Mid-Continent and New York offices fully equipped. Box E-434, The Oil and Gas Journal, Tulsa, Okla.

MUST drill offset wells Loving County, Texas, on entirely proven acreage. If interested write H. Freels, 1526 Birchwood Ave., Chicago, Ill.

JOBERT OIL DRILLING COMPANY offers fifty divided assignments interest nonassessable in drilling well on forty acre lease, mile and half from production Kilgore, Texas. Interest money back from first oil runs before company receives a cent. One thousand dollars per. Send money to Citizens Bank or 300 South Saunders St., Tyler, Texas. No stock or units but ownership interest. Total interest in seven-eighths lease one hundred. Jobert Petroleum Company, 300 South Saunders, Tyler, Texas.

BUSINESS OPPORTUNITIES

Drilling Contractors or Company!

I have acreage NW 10-11-3, Oklahoma City field, good for 20,000 bbls. or more, Wilcox sand. If you will drill well for pay in oil or interest in lease, please write

Box 489, Shawnee, Okla.

CURTIS BROKERAGE COMPANY
dealers in
Used Oil Field Equipment
for
Drilling, Production, Gasoline and Pipe Line Departments.
List your surplus with us.
And advise us of your needs.
S. O. Curtis, P. O. Box 1214.
Seminole, Oklahoma.

CARTER GAS FIELD for new developments. Geological opportunity. North East. P. O. Box 133, Sulligent, Alabama.

EXTREME LOW DRILLING COSTS and gusher (up to 5,000 bbls.) production make Williamson County, Texas, serpentine plugs the best venture. $4,000 to $8,000. Covers entire cost of blocking and the drilling of the well. Inquiry solicited.
NICOLLE & NICOLLE
Geogologically Selected Drilling Blocks
P. O. Drawer 1720 Fort Worth, Texas.

NATURAL GAS OPPORTUNITY FOR GOOD RELIABLE DRILLER with complete string of tools capable of drilling 2,500 feet and who has 2,500 feet of good casing and some capital. Situated in Northwestern State not now served with natural gas. Geology by F. Julius Fohs of New York and Tulsa. Gas found at 1,000 feet and 2,200 feet. Has rock pressure of 400 pounds and tests 1,200 B.t.u. per thousand. Number of wells drilled proves presence of gas but through poor management wells have been lost. Easy drilling. Shale. Wonderful market for gas. Long winters. Altitude 2,200 feet. Coal costs $12 per ton. I have well located leases and can handle franchises and pipe line and some capital for control. Give references as to your ability, standing and equipment in first letter and HURRY. Address Box E-439, The Oil and Gas Journal, Tulsa, Okla.

INCORPORATIONS

CHARTERS — Delaware best, quickest, cheapest, most liberal. Free forms. Colonial Charter Co., Wilmington, Del.

MONEY RAISING

DO YOU NEED MONEY for organizing or financing oil or mining deals? Write 2443 N. W. 12th, Oklahoma City.

CAPITAL—Call or send facts about high grade oil projects to James E. Miller Co., 207½ East Third St., Tulsa, Okla.

JOHN MORRIS, 3608 WARREN ST., PHILADELPHIA, PA., invites full facts first letter from capable parties planning negotiation of reasonable capital support for undertakings distinctly of higher order. Use registered mail, safeguard data.

FINANCE YOUR OWN project with shares bonded. Quickest, most satisfactory known method of raising capital. Information free. Bankers Interstate Security, Electric Bldg., Denver, Colo.

CORPORATE organizing and promoting of meritorious enterprises; reorganizations and new financing.
The BROOKWORTH CO., INC.,
110 East 42nd St., New York, N. Y.

IF YOU WANT your securities or proposition intelligently submitted to underwriting and security selling houses in New York, write W. W. Hines, Room 803, 150 Broadway, New York City.

CAPITAL—An experienced, dependable broker will aid in financing projects of merit. Amster Leonard, East Orange, N. J.

CORPORATE FINANCING
Our distributing facilities are broad enough to handle all types of issues, both large and small, for those desiring capital through the sale of securities. The Brookworth Co., Inc., 110 East 42nd St., New York, N. Y.

POSITIONS WANTED

GEOLOGISTS, now employed, wishes change with independent operator on interest basis in East and Central Texas. Address Box E-432, The Oil and Gas Journal, Tulsa, Okla.

GRADUATE engineer, six years' experience, familiar with design of fractionation and distillation equipment, desires position with refining company as designing engineer or chief draftsman. Write Box E-436, The Oil and Gas Journal, Tulsa, Okla.

AVAILABLE now, former office manager for oil corporation. Thoroughly experienced in general, refinery, pipe line and station accountancy. Age 32, excellent record and references. Write Box E-435, The Oil and Gas Journal, Tulsa, Okla.

SCOUT AND LANDMAN. 15 years in Texas fields. Good references. Wide acquaintance with oil men. Experience in production and drilling. Go anywhere. Address Box E-440, The Oil and Gas Journal, Tulsa, Okla.

FIFTEEN years' experience refinery construction, rigging, fitting, general construction. Erect anything a railroad will haul. Nothing too heavy or too high. References from major companies. Consider yard foreman or dismantling. Write Box E-419, The Oil and Gas Journal, Tulsa, Okla.

GEOLOGIST, foreign and domestic experience, for last three years had charge geology and assistant landsman of Texas for company; desires connection with small company, or independent, part salary, part interest. Write Box E-438, The Oil and Gas Journal, Tulsa, Okla.

HELP WANTED

DESIRE CONNECTION with producer who would be in a position to furnish 1,500 barrels of high-gravity, Mid-Continent crude per day, also to take financial interest in Canadian Refinery. Answer Box E-424, The Oil and Gas Journal, Tulsa, Okla.

ANNOUNCEMENT

Effective with this issue of The Oil and Gas Journal a new rate of 20 cents per line for the first insertion and 15 cents a line for each additional insertion will apply on Position Wanted ads. If you are unable to locate the particular kind of work you are best fitted for, insert an ad of your own, telling of your qualifications. We will give you a box number and mail your replies to you without any additional charge.

FOR SALE—MAPS

OIL DEVELOPMENT maps, any county in Oklahoma, 75 cents each; lease block and detail maps. Write for map list. Lindsay Map Co., Franklin Bldg., Oklahoma City, Okla.

SOUTHEAST NEW MEXICO
MAPS
Send for list.
THE M. H. HUNTER CO.
Roswell, N. Mex.

OIL INDUSTRY PRINTING

OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

PATENT ATTORNEYS

REGISTERED PATENT ATTORNEYS
United States and Canada
Before disclosing your invention to anyone, send for blank form.
Evidence of Conception
Bulletin "How to Establish Your Rights" and complete information free.
LANCASTER, ALLWINE & ROMMEL
240 Ouray Bldg. Washington, D. C.

CLASSIFIED WANTS

Create and Build Sales

LEASES—PRODUCTION

OIL LEASES AND ROYALTIES
Bought and Sold.
In the Hobbs Pool,
Lea County, N. Mex.
A. L. Gurley, Clovis, N. Mex.
P. O. Box 211 Phone 392.

FOR SALE: 5,000 acres oil and gas leases on structure, settled production. Royalties and mineral rights on large tract. Complete data furnished on application. W. P. Harley, Bowling Green, Ky.

MINERAL DEEDS—LEASES
Mineral deeds under major company leases or accompanied by leases. Stevens-Morton County area, Ness-Trego-Gove area in Kansas and Beaver-Texas Counties, Oklahoma area.
J. W. SAIN
310 Brown Building
Wichita, Kansas.

OIL LEASES AND ROYALTIES
In Northeastern Colorado on Morgan uplift. Also drilling blocks geologized by Mr. Culter, who spotted the discovery well.
FREE MAP.
C. T. Ahlstrand
Greeley, Colo.

I HAVE three blocks of oil and gas leases consisting of 30,000 acres with good anticlinal geology in Tioga and adjoining counties, northeast Pennsylvania, where the recent five wells drilled came in ranging from 15,000,000 to 80,000,000 cubic feet; good market and price for gas; will checkerboard any holdings or make drilling proposition on fair basis. P. O. Box 182, Williamsport, Pa.

10,000-ACRE SOLID LEASE BLOCK
New Mexico, Chaves County, near Lea County. Good geology, 6 miles northwest Roswell, five-year term, one-eighth royalty, no drilling required. Five cents acre rental. Price only $1.25 acre. Wm. Spurck, Story Bldg., Los Angeles, Calif.

EAST TEXAS
Leases, Royalties, Drilling Blocks, Production, Crude Oil. Direct connections, Longview, Tyler, Kilgore.
Field Office: Henderson, Texas, next to Post Office. Phone 602.
Call, Wire, or Phone
J. S. Jones.

LEA AND ROOSEVELT COUNTIES
New Mexico, 1/64th interest perpetual mineral deeds under Major Oil Co. 160-acre leases. Price $25. Active areas. Roy G. Barton, Avalon Hotel, Clovis, N. Mex.

EAST TEXAS leases and royalty in the trend, price right. Frank Poorman, 206 Andrews Bldg., Dallas, Tex.

FOR SALE—Lease on north half Section 7-15 south, 32 east, Lea County, New Mexico; four years to run; make offer. J. B. Holt, El Dorado, Ark.

LOGAN COUNTY, Oklahoma, lease for sale: 157 acres in midst of leased field, bonus offered year ago. Give best offer for lease. Grover C. Coleman, Swifton, Ark.

CHOICE leases, royalties and drilling blocks in the hottest spot in East Texas; Nacogdoches, Shelby, St. Augustine, Angelina Counties; some small tracts worth the money. Box 427, Nacogdoches, Tex.

HAVE LEASES AND ROYALTY in practically all parts of Cass County. Plenty activity. If interested wire quick.
D. V. Davis,
Atlanta, Texas.

LEA AND ROOSEVELT COUNTIES
New Mexico, 1/64th interest perpetual mineral deeds under Major Oil Co. 160-acre leases. Price $25. Active areas. Roy G. Barton, Avalon Hotel, Clovis, N. M.

WEST KENTUCKY Oil and Gas Leases. All picked leases on proven structure. Big Gas Wells flowing. Oil wells 10 cents per acre with 10 cents rentals per acre. W. S. Lowery, Paducah Star Route, Marion, Ky.

COMMERCIAL LEASE on 126 acres northern Rusk County, Texas. $5.00 per acre. Frank Clarke, 603 S. Main, Henderson, Texas.

LEASES—PRODUCTION

WEST KENTUCKY Oil and Gas Leases. All picked leases on proven structure. Big Gas Wells flowing. Oil wells 10 cents per acre with 10 cents rentals per acre. W. S. Lowery, Paducah Star Route, Marion, Ky.

DRILL THE OTHER FLANK OF SABINE UPLIFT opposite new East Texas fields. Significant similiarity. Dollar Oil—No proration—Cheap Leases—Cheap Drilling. Write Charles G. Bennett, Bernhardt Bldg., Monroe, La.

FOR SALE—1,000-acre lease in Clay County, Tennessee, with 4-bbl. oil well and 1,000,000-foot gas well. Will bear investigation.
R. E. Connor, Agent,
Bremen, Ohio.

EAST TEXAS Lease blocks and royalties. West Texas royalty $10 down, balance monthly. Anderson, Linz Bldg., Dallas, Texas.

NEW MEXICO leases; Lea, Eddy, and Chaves Counties. H. T. Orcutt, 1016 Colcord Bldg., Oklahoma City, Okla.

IN EAST TEXAS
The world's greatest oil field, fortunes being made in lease trading. Well known, experienced oil man forming syndicate to trade in leases; wants few men to invest with him; quick profits assured; earnings divided at close of each deal. James W. Rich, 401 Bankers Mortgage Bldg., Houston, Texas.

OIL Crane County bargain, 20 to 160 acres fee by owner, Sec. 18, Blk. 28, 201 Ewell Nalle Bldg., Austin, Texas.

ROYALTIES—PRODUCTION

FIND OUT FIRST!

In whatever phase of the oil business you may wish to invest—Leases, Production, Natural Gas, Royalties—it is a good plan to "find out first."

Avoid costly mistakes and disappointment.

Unless you are trained by education and experience to judge values and possibilities, you may need the guidance of those who are so educated and trained.

Such service is at your disposal; we are thoroughly equipped, with trained men here and in the field, and with the necessary plant and equipment, to give you reliable appraisals based upon known Geological and development conditions, of any producing or potential oil or gas property—no matter where located.

NATURAL GAS & PETROLEUM
RESEARCH CORPORATION
122 East 42nd Street,
NEW YORK CITY.

PANHANDLE NATURAL GAS ROYALTY
162.6 acres, 47,000,000-foot gas well, open flow, to supply city of Indianapolis, Ind. Purchaser assured of long, lasting, paying gas royalty income. Address owner, P. O. Box 825, Tulsa, Okla.

ROYALTY BARGAINS in Oklahoma, Lincoln and Pott Counties for sale. American Inv. Co., 201 Elks Bldg., Oklahoma City, Okla.

OKLAHOMA OIL ROYALTIES
Royalty Sales Company
Suite 523 105 N. Clark St. Chicago.

EAST TEXAS ROYALTIES—Gregg, Rusk, Cass, Marion, Harrison Counties. Big list. Harry Haynes, Grantville, Kans.

DRILLING STARTING in Kilgore Townsite; 1/128th. land owners royalty in two tracts; in edge of Kilgore; $100. Act quick if you want in this royalty division. Guy J. Stumpff, Con. Eng., Box 404, Kilgore, Texas.

EAST TEXAS ROYALTIES on geology head of production with wildcats drilling close. Sensible prices and individual direct deeds. See maps and geology and pick your own play. Wells drilling make promptness important. R. R. Fisk, 1214-C, Wichita Falls, Tex.

ROYALTIES—PRODUCTION

HEADQUARTERS
FOR ROYALTIES

We maintain a complete organization in New York, and in Tulsa (with reliable connections in other oil field centers) for the handling of all kinds of Royalty transactions—buying, selling, investigating.

Your requirements will be given our careful and considerate attention.

We are members of the Mid-Continent Royalty Owner's Association, and we enthusiastically support the Association's code of ethics.

THE LAND & ROYALTY
CORPORATION

37th Floor CHANIN TOWER,
NEW YORK

Postal Telegraph Wire in our Office.
Telegraph Address: "CDX NEW YORK"

ROYALTIES—Sure they move slow. Nothing but actual bargains are selling. I'm not wasting my time with anything else. The fellow who makes money is the one who isn't swayed by the crowd. So, for royalties that are selling now write J. B. McAnally, Hunt Bldg., Tulsa, Okla.

J. G. REAVES & COMPANY

Dealing in royalty interests underlying producing oil properties and undeveloped lease-holdings of the major oil companies in all Texas and Louisiana oil fields. Inquiries invited.
Milam Building,
SAN ANTONIO, TEXAS
Reaves Building,
TYLER, TEXAS.

MID-CONTINENT OIL ROYALTIES at reasonable prices and with assurance of safety. Past record "Chicago dealer since 1920" indicates quick return of principal and handsome profit. Write me. J. A. Wolf, 208 South LaSalle St., Chicago, Ill.

ROYALTIES in HOT SPOTS, Kansas, Oklahoma and Texas, under drilling wells, offsets, core drilled structures, under Major Co. Blocks, for the small or large buyer. Fast, reliable and dependable service for investors and brokers, in United States and Canada. Special offerings in the Ritz high gravity Major pool in McPherson County, Kansas, on Shell Block, under drilling wells, under drilling well Greenwich area Sedgwick County, Kansas, Shell block, Gaines County, Texas, under the Texas Pacific Coal & Oil Co. well now drilling, northeast of Hobbs pool, on 2,503 acres. Many others. Send today for latest list and maps. James R. Haynes, Grantville, Kansas.

WANTED PRODUCING OIL AND GAS PROPERTIES
And Royalties in exchange for new, well located and rented offices, hotel and apartment buildings in Kansas City, Mo., and Wichita, Kansas. Also ranches and lands. Have some good ones and can get quick action. Write me fully what you have and what you want.
H. T. Lynch,
403 Brown Bldg.,
Wichita, Kansas.

BEDROCK ROYALTY PRICES ahead of drilling on major company blocks, $6 per square mile. Perpetual deeds and title warranty. Clearly stated and understandable interests. See maps and bulletins. R. R. Fisk, Box 1214-B, Wichita Falls, Texas.

ROYALTIES ahead of drilling wells, major company, core-drilled structures. Write William Hallam, Jr., 214 Patterson Bldg., Denver, Colo.

EAST TEXAS royalties and leases ahead of production in trend of development. Wire or write for latest offerings or tell us what you want. Wm. T. Earnest & Co., Wilson Bldg., Dallas, Tex.

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The rate for Classified **Display** Advertising set in similar style to this Ad or in two Column style is as follows for each insertion:

1 inch	1 Time	$5.00
1 inch	13 Times	4.50
1 inch	26 Times	4.00
1 inch	52 Times	3.50

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One point borders and ten point capitals are allowed, larger type not accepted.

Changes in copy must be in our office 10 days in advance of publication date.

Mail your advertisement to the Largest Classified Section in the Oil Industry.

THE OIL AND GAS JOURNAL
TULSA OKLAHOMA

ROYALTIES—PRODUCTION

ROYALTY RECORD

Form shows rental record, mortgage record, expenditures, sales record, tax record, well record, monthly production record. All on one sheet; size 8½"x11"; punched to fit standard ring binder. Convenient for desk or brief case. Sheets—$5 per 100; fine leather binder, $5.25; leather tabbed index, $1.20. Order this complete record today. Know what you own and its condition.
E. L. STECK CO.
Austin, Tex.

MAKING geological and geophysical survey East Texas, Gregg-Rusk Counties, and further can furnish some royalties and leases; reliable connections solicited; very best of references furnished. C. E. Deaton, 205 Campbell Bldg., Longview, Texas.

FOR SALE
½ Royalty S½ SE¼ 31-13-4E Lease and ½ R. in SW¼ of NE¼ of Sec. 14-14-4E; ¼ Royalty on N½ NW 3-14-4, Lincoln County. Write Box E-437, The Oil and Gas Journal, Tulsa, Okla.

$12.50 BUYS DEED part oil, 2 oil royalties City Pool. Ed Milam, Dept. E, Oklahoma City, Okla.

WANT ROYALTIES on structure from Range 7w to 8e and from T. 5n to 17n. Only bargains considered. R. J. Hill, R. 4, Tulsa, Okla.

WANTED

BROKERS, salesmen wanted; guarantee investors 100 per cent cash money invested return from net profit when oil sold; interest payable from pipe line company. Reply Mid-Kansas Petroleum Co., Wichita Falls, Tex.

CAPITAL wanted to drill on reserve tract in midst of leased field. Organize development company. Write G. C. Coleman, Swifton, Ark.

RANCHES AND FARM LANDS

FOR SALE—2,200 acres Mississippi Delta lands with good oil prospects, most fertile land in world. One crop pay for it. Write for particulars. Pitts & Garnett, the Land Men, Indianola, Miss.

GAME PRESERVE, fine water, wonderful ranch, oil prospects. Sixty thousand acres, Southwest Texas, for sale. Fee simple.
W. H. Carver,
Uvalde, Texas.

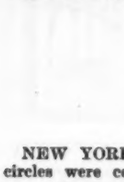
Offer Rumanian Gasoline on East Coast

Refinery Market Showed Slightly Better Tone and Tank Wagon Market Held Steady. Better Undertone Noticed

By A. E. Mockler

New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street

NEW YORK, Mar. 16.—Eastern oil circles were considerably disturbed this week over the reported offering of Rumanian gasolines, laid down at United States North Atlantic ports, at prices under the Gulf export quotations for American gasolines. Rumanian 64-66 gasoline was reported offering to American buyers at 5¾ cents, c.i.f. American North Atlantic ports, and a 250 endpoint gasoline, high gravity, at 5½ cents c.i.f. While no sales of the Rumanian product were reported made in the United States, the fact that Rumanian marketers are in a position to offer motor fuel in the United States at a laid down price under that quoted for the domestic product is ample evidence of the important position now occupied by Rumania as a competitor with the United States in European and other export gasoline markets.



Refinery gasoline showed a slightly better tone in East Coast territory during the week, and the tank wagon market also held steady, with the exception of a 1-cent cut in posted prices in Delaware. The remainder of the market was in less favorable position. Lub oil prices again weakened; spot kerosene sold off a quarter cent, and paraffin wax was also lower. Bunker oil remained in steady position locally although Gulf sellers were offering bunker "C" in cargo lots at concessions from recent levels. Competition from the Gulf and California has not yet become sufficiently strong to jeopardize the present posted price schedules for these oils in East Coast markets, it is felt.

Refinery Gasoline

The action of Warner-Quinlan Co. early in the week in advancing its posted price for U. S. Motor gasoline at refinery from 6¾ to 7 cents has restored a range of 7 to 8 cents in the local refinery market, with by far the greater proportion of current business at the 7-cent level.

While price cutting below the 7-cent figure is by no means extinct, it appears a better undertone is developing and leading refiners are making a determined effort to hold the market at 7 cents. The success of this effort will be determined largely by the amount of distressed California and Gulf gasoline which will find its way to North Atlantic markets during the next several weeks.

The extremely low prices for crude in Mid-Continent and California markets place refiners in these territories in a favorable position, so far as production costs of gasoline are concerned, but as considerable refining capacity in California, and some in the Mid-Continent, is controlled by subsidiaries or affiliates of the dominant eastern integrated companies, it is not expected any uncontrolled movement of motor fuels from these territories eastward may be anticipated. The tanker situation at the moment would appear to favor independent shippers, but the eastern market position is such refiners here would probably take prompt steps to meet any real sustained competition from so-called "outside" gasolines.

Developments in Washington with respect to possible curtailment of shipments of South American crude and gasoline also furnish bright spots in this week's market picture.

Tank car gasoline buyers who withdrew from the market last week in the belief that the general price structure was due to undergo a further sharp break, have come back for replacement supplies, and a fair measure of confidence in the general market position seems to have been restored. Weather conditions have been favorable, and sales to distributors have picked up as the latter have experienced a heavier demand from retail outlets.

Tank Wagon Gasoline

Standard Oil Co. of New Jersey reduced tank wagon and service station gasoline prices 1 cent in Delaware, effective March 12, this revision being made to meet a similar cut by Atlantic Refining Co. With this exception, the tank wagon market in this territory has remained unchanged.

Gallonage in tank wagon markets has begun to show a seasonal upward curve, as weather conditions improve, and marketers are rather optimistic, although the unsettled condition in refinery markets is causing some disquietude.

Service station price schedules are still far from uniform throughout the territory, particularly in the larger cities, where leading marketers are finding it necessary to meet a good deal of local competition. The market in Brooklyn is posted at 15.3 cents retail by the leading companies, but some of the leading brands can still be bought at 7 or 8 gallons for $1 in some sections of the city. Deducting the state tax of 2 cents, this shows a return averaging but a little over 10¾ cents at service stations, which is reputedly considerably under cost.

Although this type of price competition is still causing considerably annoyance to marketers, it is reported the situation is gradually improving, and the seasonal upswing in consumption is expected to materially further marketers' efforts to stabilize the retail situation. Premium gasolines have been somewhat affected by price-cutting competition during the winter, but the market for the premium grades now seems to be strengthening at a more rapid rate than that shown by the so-called "regular" grades.

Kerosene

The refinery market has weakened somewhat and 41-43 water white can now be bought at 6 cents in tank car lots in the New York harbor district, although the posted price continues unchanged at 6½ cents. The 6-cent quotation is a cut of a quarter cent from the previous inside figure. Business has held up fairly well, but supplies are still liberal, and weak holders are still exerting some selling pressure to stimulate spot business.

Kerosene gallonage has been well maintained in the tank wagon market, and prices are without change in this branch.

Export demand for kerosene is somewhat disappointing, competition from Russia, Rumania and Poland adversely influencing foreign demand for the American product in many instances.

Fuel Oil

Bunker "C" has met with a good demand with the posted price holding unchanged at $1.05 per barrel in bulk f.o.b. local refinery terminals. Marine interests are increasing their contract withdrawals, and the rate of increase in activities in shipping circles appears to be showing considerable acceleration.

The cut in crude oil prices has tended to soften the market undertone for fuel oil, and refiners in this area are closely watching the Gulf for further developments in fuel oil prices.

Industrial consumption of low-grade fuel oil is well maintained and a fairly steady market is reported in spot sales to this division of the eastern market.

Diesel Oil

No changes have developed in the eastern market, the posted price continuing unaltered at $1.85 per barrel in bulk at refinery terminals.

Notwithstanding unfavorable conditions in other branches, Diesel oil appears in fairly steady position, and aggregate gallonage thus far in the year has shown some gain over comparable 1930 totals in a number of instances.

Seasonal increase in consumption is beginning to make itself felt, and refiners look for a steady expansion in sales over the summer. More and more pleasure craft are being equipped with Diesel engines, and the commercial cruise business likewise shows a substantial increase at this season.

Gas Oil

Spot business has been quiet along routine lines, and contract deliveries have also been of conservative volume. The market is still in a rather weak position, with the posted quotation of 5¼ cents being shaded by as much as 1 cent in some instances.

Refiners are continuing to produce gas oil in smaller volume, refinery stocks of fuel and gas oils at East Coast refineries having shown a steady and substantial decline from week to week since the beginning of the year.

Lubs

Weakness in crude oil has again brought about a downward move in lub oil prices and buyers who were beginning to regain some of their confidence earlier in the month are again disposed to hold off awaiting some stabilization of the market. Spot 600 steam refined is a quarter cent lower at 16½ cents, with 635 showing a half cent drop at 17 cents and 650 steam refined down a half cent at 20 cents. The market for 630 Pennsylvania flash is 1 cent lower at 27 cents, with Warren and Oil City "E" showing a corresponding drop at 21 cents and 20 cents, respectively. Bright stocks are unchanged.

Pale and red oils are without price change, but business has eased somewhat. Textile mills have evidently covered on their immediate needs, and tank car deliveries showed some falling off.

Wax

Domestic buying of paraffin wax has failed to show the expected improvement, and a weak tone rules. The only price change was on 125-127 a.m.p., which sold off an eighth at 3½ cents. White crude scale, 122-124 a.m.p., was quoted at 2¼ cents, with quiet trading reported. Export buyers were inquiring for wax in a small way, but little actual business was reported.

Export Market

Gulf prices for gasoline for export are more or less nominal, although the general undertone is easy. No cargo inquiries for either gasoline or kerosene for export were reported, with reports among export operators indicating Rumania is still getting most of the foreign business which would ordinarily reach the Gulf.

Panuco heavy crude was reported offering at 49 cents, plus taxes, this representing a slight reduction from recent quotations.

Venezuela crude is still held at 75 to 76 cents, with no immediate cargoes offered, although buyers are looking for a downward scaling in the market in line with recent price cuts on crude oil in United States fields.

No export business on California gasoline was reported in the open market.

Petroleum Exports

A substantial recovery in export shipments of refined products developed in the local market during the week ended March 7, shipments being materially in excess of those for the previous fortnight. Despite the heavier movement of products, new business remained rather slack, the cuts in crude prices and the unstable gasoline market here tending to cause buyers to defer further purchases at this time.

The following table shows principal exports of refined petroleum products from New York for the past three weeks (all figures in gallons unless otherwise noted):

	Week ended		
	Mar. 7	Feb. 28	Feb. 21
Gasoline	400,000	.....	200,000
Naphtha	975,000	35,000	90,000
Kerosene	40,000	15,000	40,000
Fuel oil	20,000	160,000	.....
Lubricating oil	2,970,000	1,410,000	1,150,000
Petroleum, ref.	475,000	325,000	900,000
	Pounds		
Petrolatum	75,000	7,000	6,000
Paraffin wax	3,175,000	1,450,000	1,070,000
Refined	25,000	360,000	140,000
Scale	1,335,000	270,000	280,000
Lubricating grease	1,050,000	325,000	695,000

Considerable interest was shown by export operators in Shanghai cables early in the week indicating the Soviet oil trust was on the point of closing a contract with a Chinese oil company for monthly deliveries of 3,000,000 gallons of Russian kerosene to Shanghai. Soviet competition with American refined products has been increasing in extent for several months, and it is expected as the Soviet tanker construction program progresses Russian oil will find its way in a larger way into many other world markets in which American refiners are now strongly entrenched. Thus, while there is some prospect of a lessening of Rumanian competition after the midyear, increasing price competition from the Soviet bids fair to take up this "slack."

Imports

Imports of crude and refined petroleum at the principal United States ports for the week ended March 7 totaled 1,539,000 bbls., a daily average of 219,857 bbls., compared with 2,079,000 bbls., a daily average of 297,000 bbls. for the previous week and a daily average of 251,250 bbls. for the month of February. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast ports—	
Baltimore	257,000
Boston	184,000
New York	798,000
Philadelphia	135,000
Total	1,374,000
Daily average	196,333
At Gulf Coast ports—	
Galveston district	63,000
New Orleans and Baton Rouge	102,000
Total	165,000
Daily average	23,571
At Atlantic and Gulf Coast ports—	
Total	1,539,000
Daily average	219,857

Distribution of total imports is as follows:

Crude	885,000
Gasoline	306,000
Gas oil	49,000
Fuel oil	299,000

California Oil Receipts

Receipts of California crude and refined petroleum at Atlantic and Gulf Coast ports for the week ended March 7 totaled 467,000 bbls., a daily average of 66,714 bbls., compared with 198,000 bbls., a daily average of 28,286 bbls. for the previous week and a daily average of 51,143 bbls. for the month of February. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast ports—	
New York	195,000
Philadelphia	57,000
Others	138,000
Total	390,000
Daily average	55,714

(Continued on Next Page)

At Gulf Coast ports—	
Total	77,000
Daily average	11,000
At Atlantic and Gulf Coast ports—	
Total	467,000
Daily average	66,714

Distribution of total California oil receipts is as follows:

Gasoline	290,000
Gas oil	77,000

Shipments of California refined products for Atlantic and Gulf Coast ports during the week (with identity of owner of tanker moving the oil where such owner is an oil company) follow:

To New York—80,000 bbls. of gasoline on the Huguenot (Richfield).

To Baltimore—76,400 bbls. of gasoline on the Washington; and 78,300 bbls. of gasoline on the Pat Doheny (Richfield).

To Philadelphia—114,400 bbls. of gasoline on the Eastern Sun (Sun Oil Co.).

To Port Arthur, Tex.—120,000 bbls. of gas oil on the Californian (The Texas Company).

Charter Market

"The only definite clean orders in the market are for Black Sea/Vladivostok and Northern States/South Africa, both for April loading," says Funch, Edye & Co., Inc., in their weekly review of the tanker market. "Some business was done for Black Sea loading and although quieter the past week, the Black Sea market appears to have the monopoly of business. A cheap black oil vessel was fixed from Aruba and Teneriffe, and there is inquiry for a large carrier from Tampico, option Aruba, to Continent April/May, but charterers are in no hurry to operate. Recent fixtures of clean vessels in the American intercoastal and coastwise trades are reported but these markets are again quiet."

Fixtures during the week were as follows: Nor Stmr Marathon, about 9,000 tons cargo, dirty, Aruba to Teneriffe, 6/-. March.

Du M/V Mijdrecht, about 9,000 tons cargo, clean, Black Sea to North Atlantic 7/1, option Gulf loading 8/6, French Atlantic, 2 ports 6d extra, April/May.

It Stmr Meloria, 3,000 tons—10 per cent, Diesel oil, Batoum to Alexandria, 7/6, April 15/30th.

Fr Stmr Jules Henry, Constanza to Alexandria, 3,000 tons—10 per cent, 8/-, option 2,500 tons—10 per cent, 9/-, clean, first half April.

Am Stmr Livingston Roe, about 100,000 bbls., clean, two trips California to North of Hatteras, 47c first trip, 47½c second trip, March/April.

Am Stmr ....., 50,000 bbls., clean, Gulf to North of Hatteras, 18c, prompt.

Am M/S Tidewater, 115,000 bbls., clean, same as Livingston Roe, April.

CANADIAN FIELDS

(Continued from Page 40)

ion's No. 2 in February made approximately 50 bbls. from the lime.

Toward the north end of the central field, Vulcan Oils' No. 2, LSD 11, Section 13-20-3w5, has been abandoned at 5,030 feet after a lot of drilling difficulties. The rig has been skidded to a new location close to No. 2 and is rigging up for No. 3. Drilling contract has been let to Roy Widney.

Operations in the Foothills

On the Waite Valley structure west of Turner Valley, Calgary Development & Production Corp.'s No. 1, LSD 10, Section 21-19-3w5, is drilling 600 feet in the lime at 4,434 feet, after getting a little gas at 3,950 feet.

Shareholders of Banner Oils, Ltd., held their annual meeting at Calgary when the following officers were elected: President, Alfred O. Maybee; first vice president and treasurer, Samuel H. Adams; second vice president, Richard Knights; secretary, William J. Harris; director, Arthur O. Maybee.

Herron Petroleums, Ltd., of Calgary is arranging to complete No. 1 test on the Herron structure, in LSD 3, Section 13-22-6w5, on a fold in the foothills north and west of Turner Valley. The test has been shut down at 3,630 feet with some gas coming from the bottom of the hole, and other gas flows at higher levels were shut off by the 10-inch and 8-inch casing. The test got the Madison lime at 2,700 feet. Moose Oils' No. 1, 4 miles further west, is at 2,835 feet and has drilled through the Madison and a considerable depth into the Devonian lime, where it got a show of light crude. This horizon is now the objective of Herron's No. 1 and is looked for at 6,000 feet or less.

Red Coulee Field

In the northwest end of the Red Coulee Field, Dalco Oil & Gas Co.'s No. 2, LSD 7, Section 19-2-17w4, has resumed drilling at 2,200 feet, after a shutdown since last fall. In the southern section, Vanalta Oils' No. 4, Section 4-1-16w4, is reported drilling below 2,000 feet. A Seattle and Portland syndicate is reported to have located a new test in LSD 10, Section 1-1-15w4, east of the proven production. On the Montana side, Askalta Oils' No. 1 Vollbrecht, SE Section 11-37-4w, is reported at 2,460 feet and cementing and attempting to drill past lost bit.

On the Alberta end of the Reserve Dome, east of Coutts, Mayland Southern's No. 1, LSD 13, Section 4-1-9w4, is starting work. Location is on a line between the Rogers-Imperial gasser to the north and the Flat Coulee Dome in Montana, which has developed gas production.

Hudson's Bay Operations

In the Keho Lake district, southern Alberta, Hudson's Bay Oil & Gas Co.'s Keho No. 1, LSD 2, Section 17-11-22w4. is cementing 10-inch casing at 3,485 feet.

In the Castor district, central Alberta, Hudson's Bay's Paintearth No. 1, LSD 5, Section 27-39-15w4, is installing new equipment to resume drilling from 3,628 feet, where casing was recently cemented.

Inland Petroleums, Ltd., finished by Coleman and Lundbreck interests, is carrying on extensive core drilling operations south of Monarch in NW Section 30-23-9w4.

It is reported that a wildcat test will be drilled on the P. Jensen farm immediately north of Commerce, Alberta.

British Columbia Operations

In the Sumas Prairie district, British Columbia, International Pipe Line's No. 3, 222-22-19-5e, has been abandoned with tools in the hole at 250 feet. The test is reported to have struck a granite intrusion at 200 feet. The rig is being skidded for a new test.

Manitoba Drilling

In southwestern Manitoba, Commonwealth Petroleums' No. 1 near Manitou is below 900 feet and has cemented off the quicksand which has been delaying drilling operations.

South Saskatchewan Project

In south Saskatchewan, Blackfoot Oil & Gas Development Co. has been organized at Regina and will test a structure about 45 miles south of that city. Officers are: President, Ira H. Bowan; vice president, Harry Rutherford; secretary-treasurer, Walter B. Hooker, all of Regina; directors, Colin Fraser, Regina; J. A. McVicar, Winnepeg, Manitoba. It is understood a contract will be let for No. 1 test.

The structure has been investigated by a number of geologists, including Dr. Clinton B. Stauffer of the geological department of the University of Minnesota; Dr. Eugene S. Perry of the Montana State School of Mines, and W. B. Fry. The structure is apparently a continuation of the Baker-Glendive gas field in southeastern Montana. This field is along the crest of a sharp anticline. Dips of 15 to 20 degrees bring the Bearpaw shales to the surface, which would normally be 1,500 to 2,000 feet deep. Wells drilled along the crest of the fold penetrate the eastern equivalent of the Judith River formation (known in Wyoming as the Mesa Verde and in Canada as the Belly River) at a depth of approximately 800 feet and flows of gas from 1,000,000 to 28,000,000 feet have been obtained. The Bearpaw shales similarly outcrop on the Saskatchewan side and conditions there are believed to be a replica of those in Montana.

Nova Scotia Drilling

In the province of Nova Scotia, the test drilled by Imperial Oil, Ltd., at Scotsburn, in Colchester County, some 30 miles north of Truro, was finally abandoned at 1,950 feet after drilling through a considerable thickness of volcanic rock. The drilling equipment has been removed to a location close to Amherst, where Imperial's No. 2 test will be spudded in almost immediately on another structure.

Turner Valley Production

Analysis of detailed figures of Turner Valley production for February shows that Imperial Oil, Ltd., took 38,955 bbls. of crude naphtha and 61,681 bbls. of discolored naphtha, and light crude amounting to 6,068 bbls. Total deliveries of all grades to Regal Oil & Refining Co. were 25,563 bbls. The largest producing well was Mercury Oils' No. 1 in Section 4-19-2w5, with deliveries for the month of 16,893 bbls., or around 604 bbls. daily. Of the newer wells, Royalite's No. 24 in South Turner Valley averaged about 35 bbls. and Royalite's No. 25 in Section 31-19-2w5 made about 85 bbls. Structure Oil & Gas' No. 1, in the same section, and Commonwealth Petroleums' No. 1 in South Turner Valley were in production only a few days toward the end of February.

Late Alberta Items

Two of the Imperial tests have apparently encountered unexpected drilling conditions. In Section 17-19-2w5, South Turner Valley, Lowery Petroleums' No. 2 is reported to have encountered disturbed rock conditions, the Dalhousie sand being encountered a second time at 5,684 feet, some 624 feet below the point where it was first reached. The test is now drilling pretty well through a second layer of Fernie shales and close to 6,000 feet. A somewhat similar condition is indicated in connection with the Calgary Development & Producing Corp.'s No. 1 well on the Waite Valley structure. This test, being drilled by Imperial Oil, Ltd., got the Madison lime around 3,850 feet and resumed drilling after cementing. A small gas show was met in the lime at 3,958 feet, and the drill at 4,200 feet was in what looked like a recurrence of the lower Fernie shales. Both tests are, however, being continued.

In the Red Coulee Field, Scottish United Petroleums' No. 1, LSD 1, Section 3-1-16w4, has settled down to a fair producer after making a flush production of 100 bbls. a day. Southern Alberta Exploration Co.'s No. 2, Section 3-1-16w4, is preparing to spud in 440 feet east of No. 1.

Ontario Fields

In the Dawn Field, Lambton County, Ontario, Union Natural Gas Co.'s No. 55, Stinson farm, Lot 15, Concession 3, Dawn Township, finished dry at 2,000 feet after drilling through the big lime at 1,995 feet. Union's No. 56, Christner farm, Lot 22, Concession 10, is drilling around 1,650 feet. Location has been made for Union's No. 57 in SE, Lot 15, Concession 2, Dawn Township, and the outfit is being moved from No. 55.

In Kent County, Argo Oil & Gas Co.'s No. 2, Lot 2, Concession A, Raleigh Township, near Fletcher, is reported drilling below 1,400 feet. Southern Ontario Gas Co.'s test on the Authier farm, N half, Lot 10, Concession 12, Tilbury East Township, is reported down 1,200 feet with casing set, and has a fishing job. In the D'Clute Field, American Engineering Co.'s No. 4, Simpson farm, Lot 148, South Talbot Road, Raleigh Township, is drilling.

KANSAS FIELDS

(Continued from Page 36)

Shell Petroleum Corp.'s No. 1 Koehn, C SE, Section 12-20-2w, has been deepened to 3,414 feet and abandoned.

Greenwood County

The Prairie Oil & Gas Co. and others made location for No. 1 Davis, NW cor. NE SE, Section 32-22-13.

Russell County

Stearns & Streeter's No. 3 J. Mermas, SE cor. NW SE, Section 33-13-15w, has been completed for 285 bbls. in sand 3,296-98 feet. Signal Oil Co. and others' No. 1-A Sellens, NE cor. SW, Section 26-15-13w, made 350 bbls. from sand 3,314-16 feet.

Sedgwick County

Fisher & Lauck made location for No. 1 Sonders, NE cor. NW SW, Section 1-28. Streeter & Stearns and others' No. 1 Toben, SW cor. SE NE, Section 5-27-2, has been abandoned at 3,352 feet. Vickers Petroleum Co.'s No. 3 Keys, SW cor. NW NE, Section 30-27-2, made 420 bbls. from Wilcox sand 3,238-42 feet after being deepened from 2,987 feet.

Saline County

Dietrich & Smoky Hill Oil Co.'s No. 1 Sudendorf, NE cor. SE, Section 30-14-2w, is dry and abandoned at 3,510 feet in Silicious lime.

Stevens County

Texas Interstate Pipe Line Co. and others' No. 1 Hull, C SW, Section 34-32-39w, made 6,524,000 feet of gas in sand 2,490-2,550 feet. No. 1 Stone, C SE Section 34-32-39w has been completed for 8,451,000 feet of gas in sand 2,518-45 feet.

Morris County

Great Basin Oil Co.'s No. 1 Balytine, SW cor. SE SE, Section 18-16-5, is dry and abandoned at 2,345 feet.

VAN DEVELOPMENT IS AN OBJECT LESSON

(Continued from Page 109)

Woodbine sand has produced 1,000 bbls. per acre for each foot of thickness of sand. Using this as a yardstick and applying it to Van, we may expect throughout the better parts of the field a production per acre in excess of 200,000 bbls.

Estimates on Ultimate Production

"The total ultimate production of this field is a figure which has not yet been determined by the detailed scientific methods which will be later applied when necessary and after more drilling. On the basis of present wells drilled the outside guesses that are being made run from a low of 200,000,000 bbls. to a high of 500,000,000. The general weight of opinion, apparently is nearer the 500,000,000 figure than the 200,000,000.

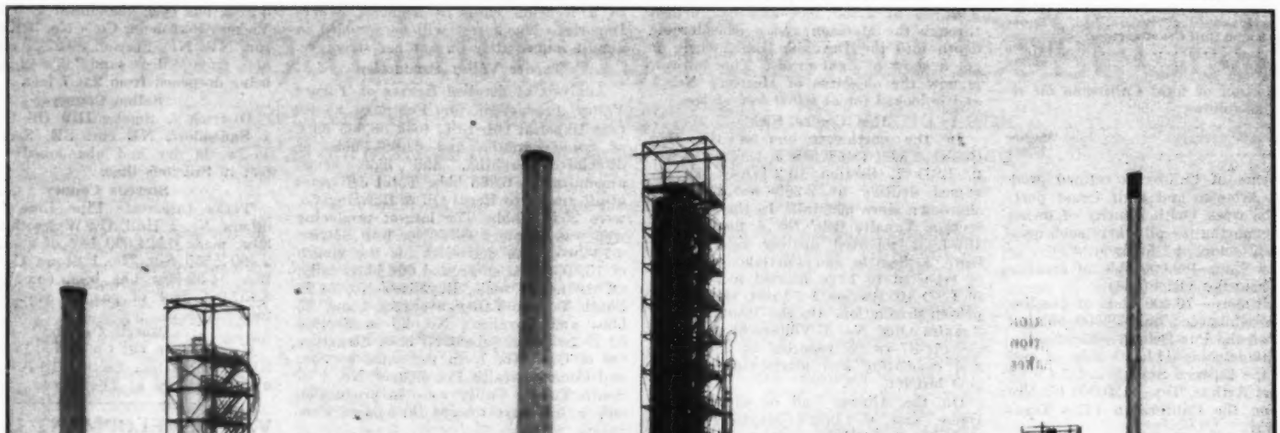
"The question is frequently asked as to how much the field would produce in a single day if the maximum consistent with good operating were desired. It is a difficult one to answer, and impossible to try under proration. It is a different amount from the potential that is set up for proration purposes and would convey no very important information unless it were made on the basis of the amount which it would produce without great diminution for some substantial period, say six months or a year. While the experts hesitate to name such a figure their discussion ranges from 500,000 to 700,000 bbls. per day from the present wells. It is not the plan, however, to produce the property in any such way, but rather to withdraw such amounts as will result in securing the best operating conditions and meet the market requirements. On this basis the technical men and the executives of the company are all agreed that this reservoir will meet the requirements of the Pure Oil Co. for many years to come.

Since wells at Van are all choked down to eleven-sixteenths of an inch before they are tested and production to date has been through that size of choke or smaller, it is difficult to make an estimate based upon any kind of accurate data of just what wells would make if allowed to flow through the casing to establish a potential figure such as is now used at Oklahoma City.

"We know that a great many wells choked to eleven-sixteenths inch and producing through tubing will make better than 100 bbls. per hour or more. With this as a guide and considering the great thickness of sand, it is certain that many wells throughout the better part of the field would make 40,000 or 50,000 bbls. per day. Using minimum rather than maximum figures and considering the 180 wells already drilled, the Van Field as a whole should give a potential for proration purposes of betwen 2,000,000 and 3,000,000 bbls. per day. These are big figures. They are difficult to realize."

VETERAN GAUGER DEAD

R. C. O'Brien, age 80 years, for many years employed by the National Transit Co. as a gauger, died Wednesday, March 11, in Butler, Pa.



Distillation Equipment to Meet Individual Requirements

Three Foster Wheeler distillation units installed in a leading refinery, are illustrated. Each unit is designed to meet specific requirements.

At the right: Atmospheric unit for running Pennsylvania crude, recovering to specification—

gasoline	fuel oil
kerosene	long residuum

Center: Atmospheric unit for running Pennsylvania crude, recovering to specification—

light gasoline	gas oil
heavy naphtha	paraffine distillate
kerosene	heavy wax distillate
furnace oil	cylinder stock
300 oil	

At the left: Rerun unit for dewaxed solution or pressed wax distillate:

Running dewaxed solution recovering—
naphtha, gas oil, bright stock.

Running pressed wax distillate recovering—
gas oil, two neutral oils, red oil bottoms.

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FOSTER WHEELER

Brief Items for Petroleum Refiners

Thirty-Day Test to Answer Question on Lubrication of Cars

The Standard Oil Co. (Indiana) is planning a series of test runs at the Indianapolis speedway under the direction of the American Automobile Association in which stock cars of 13 different makes will be run under various conditions and for a period of 30 days, to settle in a practical way certain questions that remain unanswered regarding oil consumption, wear on cylinder walls, accumulation of carbon, the merits of different grades of oil and other phases of motor operation. About 50 association drivers will participate in these tests under the supervision of T. A. Allen, the secretary of the contest board. All data are to be carefully gathered and studied by qualified experts, who will announce their findings following the test.

The cars to participate include a Ford Model A, Chevrolet six, Pontiac new series big 6, Buick 8-90, Oldsmobile 6, new model Chrysler, Studebaker President 8, Hudson Great 8, Cadillac V-8, Willys Knight 66B, Nash 8-80, Cord, and Reo 30. All are sedans. Each car has been purchased out of stock and sealed under supervision of the A.A.A. officials to prevent any substitution. Each has been painted white to increase the factor of safety in night running.

The variety in the cars chosen introduces into the test practically all construction features which can cause variation in fuel and oil consumption.

The running of the test will be financed by the Standard Oil Co. of Indiana as part of its program of research to improve motor fuels and lubricants. To some degree it will supplement laboratory tests which have been carried on by the company for several years with important results which were announced last year. Laboratory findings will now be checked by the prolonged grind to which the cars will be subjected on the speedway.

The A.A.A. officials conducting the test will include in addition to Mr. Allen, William G. Wall, Indianapolis, consulting engineer; William Taylor, Detroit, technical supervisor; E. Van Hambach, Detroit, Charles Metz, Indianapolis, and Kimbark Howell, Indianapolis, unit supervisors; W. D. Edenburn, Detroit, chief of personnel.

LION REFINING ELECTS; ALL OFFICERS RETAINED

Stockholders of Lion Oil Refining Co. at their annual meeting last week, at El Dorado, Ark., re-elected the following officers: T. H. Barton, president; T. M. Martin, E. D. Ellison and M. E. Wilson, vice presidents; J. A. Crenshaw, secretary. H. C. Osmond is assistant secretary and treasurer. Directors elected were: Messrs. Barton, Martin, Ellison, Wilson and Crenshaw, J. J. Allinson, H. D. Whitehouse and J. K. Mahoney.

W. T. ATKINS PROMOTED

W. T. Atkins, who was made general salesmanager of Skelly Oil Co. in January of this year, has been elected a vice president of the company and placed on the executive committee and the board of directors, according to the announcement this week of President W. G. Skelly. Mr. Atkins has been connected with the sales organization of the Skelly company for the past 10 years and was manager of the bulk and retail station sales before his appointment as general salesmanager. Mr. Atkins' offices are in Kansas City, Mo.

CHEMISTS TO SEE GASOLINE ENGINE FLAME PROPAGATION AT MEETING

Photographic flame studies, including records taken from gasoline engines designed for determining knock ratings, will be among the subjects of interest to the oil industry to be presented at the eighty-first meeting of the American Chemical Society, March 30 to April 3, at Indianapolis, Ind. Papers introduced by chemists in research laboratories of oil and motor companies, petroleum sections of government bureaus and the universities, will be read in sessions of the society's petroleum division of which Cary R. Wagner, chief chemist of Pure Oil Co., Chicago, is chairman.

Lloyd Withrow and T. A. Boyd, of General Motors Research Laboratories, Detroit, will describe the apparatus with which, by photographic means, simultaneous flame and pressure studies have been made of individual explosions in the gasoline engine. These records show clearly the relation between the rates of flame travel and the resulting rates of pressure rise in knocking and in non-knocking explosions. A manyfold increase in the rate of combustion within the latter portion of the charge is indicated to be responsible for the phenomenon of knocking which has heretofore been recognized by its characteristic sound and the shape of its pressure record. The photographs indicate that during the combustion process, according to the investigators, there is a relatively narrow combuston zone which moves progressively through the charge, and that after the burning of the fuel in the combustion zone is over, the products of combustion continues to emit light for some time.

The intensity of this afterglow, the data show, increases as the pressure in the combustion chamber begins to rise rapidly, and during the period of maximum pressure it is most intense in those portions of the products of combustion which were formed in the early part of the explosion before the pressure had risen above the compression pressure.

Determination of the color stability of gasoline in sunlight by the adaptation of the oxalic acid-uranyl acetate actinometer will be described by O. M. Reiss, of Standard Oil Co. of New York, who made comparisons under varying conditions of intensity and at different temperatures. The results of Mr. Reiss' experiments show that for the same gasoline as much as three times the exposure may be required on a dark day as on a bright day to produce similar color changes. The effect of temperature on the sunlight stability of one gasoline were shown to

(Continued on Page 129)

REFERENCE FUELS MADE AVAILABLE FOR TESTING

The Standard Oil Development Co. has prepared for distribution among refiners and marketers operating knock-rating laboratories two standard reference fuels. These have been accurately calibrated on a series of 30 Ethyl Gasoline Corp. engine in terms of octane numbers using tetraethyl lead and C. P. benzine. Fuel comparisons have been made using the bouncing pin method and the data were determined for two different operating temperatures. The one set was derived while the cylinder cooling medium was maintained at 212° F. and the other while held at 300° F. The latter facilitates the testing of aviation fuels used in engines cooled by special means. Deliveries will be made in 50-gallon drums or in 10-gallon cases of two compartments, facilitating shipping 5 gallons of reference fuel A and 5 gallons of fuel B. A complete description of the standardization and use of these fuels was contained in an article by Dr. Graham Edgar in The Oil and Gas Journal on Page 101 of the March 5, 1931, issue under the heading "New Developments in Knock Rating."

NEW MANCHURIAN REFINERY

The Tokuyama Paraffin refinery, affiliated with the South Manchuria railroad, is expected to begin refining crude paraffin from the Fushun oil shale plant shortly. The annual production of the new refinery is estimated at 9,000 tons of refined paraffin and 7,000 tons of heavy oil. Mitsubishi Co. has been awarded a contract to handle sales of the products.

MARINE OIL PURCHASE BIDS

The quartermaster's department of the Marine Corps, Washington, D. C., will consider bids to furnish gasoline, kerosene and fuel oil to various Marine posts during the last quarter of 1931, with March 19, as the closing date for submitting proposals. Delivery will be to Annapolis, Md., Philadelphia, Pa., Washington, D. C., Quantico, Va., and Parris Island (Port Royal), S. C.

GULF COMPLETING LARGE VIRGINIA STORAGE UNIT

Gulf Refining Co. is expected to have its new storage and distribution plant at South Richmond (Virginia) in operation this month when work will be completed on the company's private wharf on the James River. The plant, which has a storage capacity of 1,387,200 gallons, represents an investment of $162,750. Four 5-inch pipe lines have been laid from the wharf to tanks located in the plant boundaries. Products will be brought to the plant in barges and will then be distributed in Virginia and North Carolina by trucks and rail tank cars.

GULF BUILDING BULK PLANT

Gulf Refining Co. has purchased a 400'x200' tract on the Allegheny River near Kittanning, Pa., as a site for a bulk plant the company proposes to build this spring. Floating docks are to be constructed on the river to facilitate unloading cargoes from the Gulf's refinery on Neville Island, at Pittsburgh. Seven large tanks for storage will be located near the docks.

PLAN WAINWRIGHT REFINERY

CHATHAM, Ontario, Mar. 14.—Stilson Products, Ltd., has been incorporated under Alberta charter to construct and operate a 100-bbl. refining plant at Wainwright, Alberta. The company's capitalization consists of 850 common shares of $100 par and 1,500 preferred shares of $10 par. The process utilized for refining the Wainwright heavy crude will be the Stilson process, covered by U. S. Patent No. 1,564,984 and for which a Canadian patent is being secured.

STERLING ADJUDGED BANKRUPT

Sterling Oil Co., operator of a 1,000-bbl. skimming plant at Collins, Mont., has been adjudged a bankrupt by Federal Judge Charles N. Pray and A. H. Gray, referee in bankruptcy. Proceedings were filed by R. E. McLaughlin, of Chicago, and others who allege the Sterling company owed debts in excess of $90,000.

SUN SHIPPING GASOLINE IN PIPE LINE SYSTEM

NEW YORK, Mar. 16.—Sun Oil Co. is now running gasoline from its Marcus Hook refinery to Pittsburgh through its new gasoline pipe line and its entire new gasoline pipe line system connecting Philadelphia, Pittsburgh, Syracuse and Cleveland is expected to be completed during June.

The western section of the Sun line connecting Cleveland and other Ohio points with the Marcus Hook refinery has been completed as far as Pittsburgh. The eastern section, to Syracuse, has been completed for 200 miles to the New York-Pennsylvania border and the additional 100 miles is being contracted for with early construction scheduled. A large bulk terminal on the New York State barge canal will be built at the Syracuse end of the line. The Sun Pipe Line, Inc., subsidiary of Sun Oil, is building the New York State section of the line. Susquehanna Pipe Line Co., affiliated with Sun Oil, is directing completion of the balance of the gasoline pipe line system, which in its entirety involves an expenditure of between $5,000,000 and $6,000,000.

SUEZ DUBBS UNITS MAKE RECORD CONTINUOUS RUN

NEW YORK, Mar. 14.—Anglo-Egyptian Oil Co., Ltd., recently completed, at its Suez refinery, a run of 1,125 hours on-stream with a Dubbs cracking unit, according ot reports from London, which add that this is believed to be the longest cracking run made east of the Atlantic.

The unit was of standard construction including a radiant type furnace and one 10'x40' reaction chamber.

This run continued approximately 46 days with the unit on-stream 93.4 per cent of the time.

A blended Egyptian charging stock of 0.901 specific gravity was used consisting of 78 per cent asphalt distillate, 12 per cent pressure distillate bottoms and 10 per cent Egyptian solar oil. A portion of the pressure distillate bottoms was injected into the reaction chamber. Such injection has the beneficial effect of retarding coke formation which usually determines the length of a cracking run. The average throughput was approximately 350 metric tons of Egyptian charging stock per day, which yielded 55 per cent of 215° C. cut benzine and 26.5 per cent of quality residue, having only 0.7 per cent base sediment and water. The remaining 18.5 per cent represents gas oil, gas and loss.

The run was terminated only because it was considered necessary to close the unit down for inspection, but all conditions were normal at the close of the run, and there is no other reason to suppose that the run could not have continued for a further long period. Little coke was found in the reaction chamber except 6 to 8 inches in the bottom. No coke was deposited in the flash chamber.

HOME DISTRIBUTORS PLANT

CHATHAM, Ontario, Mar. 14.—Home Oil Distributors, Ltd., of Vancouver, is erecting a distributing plant at Vernon, British Columbia, at an estimated cost of $12,000. J. F. Moffat of Vernon has the contract. C. J. Clark will have charge of the Vernon district for the Home company.

MEXICAN OIL REVENUES DROP

Revenue from Mexican petroleum production and exportation in February was one of the lowest recorded, according to figures of the ministry of finance, totaling 414,463 pesos during the month. Of this amount, 266,164 pesos came from production taxes and 148,299 pesos from exportation.

Manufacture of Natural Gasoline

Marketed Output of Liquefied Gases in Steady Annual Rise

Supplementing information published in the March 12 issue of The Oil and Gas Journal, the following data, released by the United States Bureau of Mines, show the steady advance witnessed in marketed production of liquefied gases since 1922, when 222,641 gallons were sold, to 1930, when the quantity marketed reached 18,017,347 gallons. The following table gives the marketed production of the liquefied gases, principally propane and butane, by years:

1922	222,641
1923	276,863
1924	376,488
1925	403,674
1926	465,085
1927	1,091,005
1928	4,522,899
1929	9,930,964
1930	18,017,347

Distribution of propane in 1930 amounted to approximately 11,500,000 gallons, or nearly twice the 1929 distribution. Butane distribution, including iso-butane, pentane and butane-pentane mixtures used for comparable purposes, reached a total of about 6,500,000 gallons, representing an increase of nearly 50 per cent over 1929.

Propane volatilizes at ordinary temperatures under atmospheric pressure but may be liquefied under moderate pressure and transported in cylinders or other special containers as "bottled gas." Propane is self-vaporizing at temperatures above —44° F., and is widely used as a domestic fuel where natural or artificial gas is not provided. The bureau estimates that 117,000 customers were served with this fuel during 1930 as compared with 55,000 in 1929 and 20,000 in 1928. The indicated average consumption per installation was 98.6 gallons.

Because temperatures may frequently be too low to permit the necessary vaporization, butane (pure) is not ordinarily used in "bottled gas" service, but is marketed principally for industrial purposes, where arrangements may be made to provide the pressure (mechanically or by heating) required for utilization. The outstanding development in the use of butane has been the establishment of central stations in communities too small to support a gas service of the ordinary manufactured or natural type. In these stations the butane is mixed with air and the resulting mixture is distributed and metered to consumers in the same manner as other gas consumers are served. Several communities in California, Oregon and Washington during 1930 received their first gas service in this manner while the number of such plants in the remainder of the country continued to increase.

Butane and other liquefied petroleum gases also are being used to replace gas oil in carburetting gases of relatively low thermal value; as a base material for manufactured gases; for recarburetion of gases to offset the loss of thermal value in high pressure transmission systems; to meet peak load conditions and as a protection against interruptions of service.

Pentane is a liquid at ordinary temperatures, but is marketed for purposes similar to those of the liquefied gases. Air is passed through the pentane container and the resultant mixture is used for domestic purposes.

NEW ARGUS PLANT

HUGOTON, Kans., Mar. 16.—A gasoline plant to be located here is being planned by the Argus Production Co., as part of its program of producing gas in the local fields and transporting it by pipe line to Omaha and thence to Minneapolis and Des Moines.

MARKET-PRODUCTION STUDY SHOWS CURVE PEAKS ARE BEING LEVELED

Prices of natural gasoline (tank car) in the Oklahoma markets from January 1, 1927 to January 1, 1931, and the total production figures for the United States during these years, are presented in the accompanying graph.

During 1927 and 1928 the markets are seen to react strongly to seasonal demand and with scarcely a perceptible relationship to production. Although in 1927 there are price increases in the fall months, it will be seen that the peak of the year comes at the very beginning with a rapid decline through January from 9.7 cents to a little better than 7.5 cents. Then there is a slight rise in February of the fraction of a cent followed by a sharp drop through March and April down to 4.7 cents. A rapid ascent in May brings the price to 6.2 cents and in the 30 days following the markets have returned to 4.5 cents. During the remainder of the year sharp contrasts in prices are less noticeable. During this time production advanced on a much more level plane.

In 1928 the natural gasoline markets continued to fluctuate within a wide margin. The low point was on April 1, at 3.8 cents, and the peak was in August at nearly 11 cents. A sharp drop of 9 cents September was followed by recoveries and relapses to December when there was a steady decline continued to the middle of January of 1929 when the price reached 5.3 cents. From this point until January 1, 1931, fluctuations were held within a closer range. Production in 1928 is seen to have progressed steadily upward without striking peaks and valleys. In 1929, when the markets reached a more even level, production began to manifest eccentricities with a low in February of 156,000,000 gallons and a high in October of 206,000,000 gallons.

Although production throughout 1930 is seen to decline, it is to be noted that variations on each side of a medial line are considerably less, on an average, than 10,000,000 gallons. Prices declined and recovered sharply in this year, but without the pronounced differences seen in 1927 and 1928. The price tenor in 1929 was on a more even plane than that of 1930 when the lowest price for the four years was reached at 3 cents.

In the more recent months the price trend has followed that of refinery gasoline instead of volume of production and changes in stocks, and this relationship will probably hold true as long as refiners continue to take such a large proportion of the total natural gasoline made.

NEW SPECIFICATIONS OFFER AID IN SOLVING REFINERS' PROBLEMS

S. S. Smith of the Shell Petroleum Corp. and representing the Natural Gasoline Association of America, offered a frank discussion of the new gasoline specifications before the refinery technical group at last week's meeting of the Western Petroleum Refiners Association in Excelsior Springs, Mo. He pointed out that the revision of the old specifications by the association simply reflects the progress in specifications in the same manner as progress has come about in the technique of refining.

He took full recognition of the fact that refiners who have added vapor recovery systems in the past, to conserve the lighter fractions contained in the gas produced by cracking, effectively decreased the proportion of natural gasoline purchased for blending. Now many of these refiners are adding stabilizing plants in order to remove only the very light fractions such as propane and retain the greater portion of the butane. This in effect, also tends to reduce the outside purchases of natural gasoline. However, the addition of this equipment by the refiner emphasizes the fact that the problems of manufacturing a finished motor fuel with respect to obtaining maximum balanced volatility and yet have a relatively low vapor pressure has become a problem of both the natural gasoline plant operator and the refiner and the two should now be better able to appreciate the significance of the new specifications.

Mr. Smith said: "It is now possible to make the general statement that the lower the vapor pressure and the higher the volatility the more difficult it is to manufacture, but the more valuable it is to the blender in controlling volatility with control of vapor pressure."

He also pointed out that if the refiner will say he desires a propane-free natural gasoline, the association may readily reduce the number of grades now proposed. The new system provides for 24 grades but there are at least 7 grades that could be very easily eliminated now because they are obviously less practical to use from the refiners viewpoint and less practical to manufacture. Mr. Smith said: "If I am correct in assuming that you can use propane-free gasolines to better advantage, then we have immediately decreased our number of grades. In again referring to the common problems of manufacturing now existing between the refiner and natural gasoline plant operator Mr. Smith said: "In the first place I assume that you gentlemen agree, with authors well known to the industry, who have shown that the vapor pressure of a motor fuel is the best index of its vapor locking tendencies. I also assume that each of you in some form or other use the A.S.T.M. distillation points along the front end of the curve for the purpose of evaluating the starting qualities, warming up and acceleration ability and perhaps to some extent the detonating qualities of your finished fuels. With these assumptions in mind the new specifications for naturals become something actually related to your finished motor fuel instead of merely letters in a grading system as in the past."

Large Increase in Capacity California Gasoline Plants

California added closed to 1,000,000 gallons daily capacity to its natural gasoline plant operations in 1931, according to a survey recently made by the Pacific Coast section of the United States Bureau of Mines. Fewer but larger units summarizes the trend in the development of the natural gasoline industry in California and this trend is typified by the development of the new Kettleman Hills area. In the survey just completed there is a total of 138 plants operating, 19 shut down and 1 building. A year ago there were 145 operating plants. The Long Beach Field continues to rank first in the list among the 27 fields, when considering capacity of plants already operating, but will soon be surpassed by the new Kettleman Hills Field. Santa Fe Springs is third in importance, having a capacity of 696,375 gallons and these three account for more than half of all of the capacity in the State.

The Kettleman Hills area already accounts for nearly one-fourth of the total capacity of all plants operating and building and when the new 130,000-gallon plant of the Standard Oil Co. of California is completed in Section 33-21-17 the Kettleman Hills plants will have a combined operating capacity of 865,000 gallons daily. In this area there are but seven plants operating and building to provide this capacity, which emphasizes the magnitude of the operations of the individual plants. The smallest plant is shown as having a capacity of 65,000 gallons and the largest 160,000 gallons.

The capacity of the plants in the various fields are shown in tabular form below and to this may be added the one 130,000-gallon plant now under construction as mentioned before.

NATURAL GASOLINE PLANTS IN CALIFORNIA

(Capacity in gallons daily)

Field—	Operating	Shut down
Belridge-Lost Hills	60,000	2,000
Coalinga	.....	4,000
Coyote Hills	109,200	20,000
Dominguez	87,000	25,000
Elk Hills	18,000	.....
Elwood	90,000	.....
Huntington Beach	133,000	8,550
Inglewood	35,500	6,900
Kettleman Hills	735,000	.....
Lawndale	5,000	.....
Long Beach	795,000	37,947
Midway	163,900	35,500
Montebello	5,300	.....
Newhall	1,000	.....
Playa Del Rey	102,000	.....
Potrero	4,000	.....
Richfield	75,500	.....
Rincon	21,000	.....
Rosecrans	112,000	4,000
Salt Lake	5,000	.....
Santa Fe Springs	696,375	.....
Santa Maria	23,000	7,500
Seal Beach	177,000	8,000
Sunset	32,500	.....
Torrance	18,300	22,000
Ventura	432,725	3,000
Wheeler Ridge	500	.....
Total	3,937,300	184,397
Number of plants	138	19

Scale Never Troubles G-R Bentube Sections

HARD water scale that quickly reduces the capacity of other types of cooling or condensing equipment does not build up on G-R Bentube Sections sufficiently to reduce their capacity below guaranteed rating. This is because the fluctuations in temperature of the tubes during normal operation cause corresponding changes in their curvature which continuously crack up and flake off scale accumulations. Even tenacious scale can be removed from G-R Bentube Sections by "temperature shock" and without requiring hand-scaling.

If your plant operations now include or will permit atmospheric cooling or condensing, you will find G-R Bentube Sections a highly profitable investment. They are standard and interchangeable, quickly set up in stacks as required for desired capacity and cooling effect, and may be installed under towers, sprays or in condenser boxes.

The G-R Bentube Section is patented and it is our intention to prosecute all infringements. Infringement suits have already been filed in two instances.

The Griscom-Russell Company, 285 Madison Ave., New York

Branches in principal oil centers.

Griscom-Russell

Heat Transfer Apparatus

Should the gas pressure drop

this Regulator gives sure protection

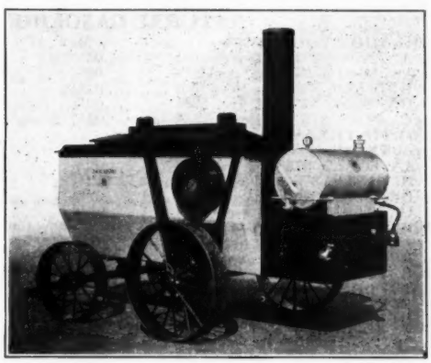
USE this regulator where gas is the fuel in low pressure burners, or furnaces. It protects against all hazards. If the pressure drops below any certain point, the Fulton Cut-Out Latch Regulator (Rolling Weight Type) shuts off the supply immediately. And it stays shut off until the locked valve is opened by hand. That's real safety—and it pays. C-F regulators always pay in any of the more than 40 types.

The CHAPLIN-FULTON MFG. CO.

28-40 Penn Ave. CF **Pittsburgh, Pa.**

STANDS FOR THE MOST YEARS OF SERVICE AND THE LONGEST EXPERIENCE IN GAS REGULATOR MANUFACTURING

LITTLEFORD KETTLES SINCE 1900



No Annoying Delays with this HOT DOPE KETTLE

A kettle may be built strong as the deuce, heat like hades and still not perform like you want it to.

For instance: the draw-off cock may be placed so that it doesn't get the right amount of heat and clogs easily . . . or the fuel tank inlet is not big enough to take a standard size tank truck nozzle, and you have to use a funnel when refueling.

Such little things are carefully watched in Littleford Kettles. When you need "Hot Dope" Kettles, be sure to send for complete information and prices.

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502 E. Pearl St., Cincinnati, Ohio

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LB
LITTLEFORD BROS. CINCINNATI, OHIO

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

	Mar. 17		Mar. 10		Mar. 3	
OKLAHOMA (Group 3)—						
50-52 450 endpoint	.03½	.03¾	.03⅝	.03¾	.03¾	.04⅛
56-58 450 endpoint	.03½	.03¾	.03½	.03¾	.03¾	.04
58-60 437 endpoint (U. S. Motor)	.03½	.04	.03½	.04	.03¾	.04⅜
60-62 437 endpoint	.03½	.04	.03⅜	.04	.04	.04⅜
60-62 400 endpoint	.03⅝	.04¼	.03⅞	.04½	.04	.04¾
64-66 375 endpoint	.04¼	.04½	.04¼	.04½	.04⅜	.05
68-70 360 endpoint	.04½	.04¾	.04¾	.05	.05	.05¼
64-66 437 endpoint (blend)	.03¼	.03¾	.03½	.03¾	.03¾	.04
NORTH TEXAS—						
50-52 450 endpoint	.03½	.03¾	.03⅝	.03¾	.03¾	.04
58-60 450 endpoint	.03¼		.03½		.03⅝	.03¾
58-60 437 endpoint (U. S. Motor)	.03⅝	.03¾	.03¾	.03⅞	.03¾	.04¼
60-62 400 endpoint	.03¾	.04¼	.03⅞	.04¼	.04	.04¼
64-66 390 endpoint	.03⅞	.04¼	.03⅞	.04	.04	.04⅜
64-66 375 endpoint	.04⅛	.04¼	.04⅛	.04¼	.04¼	.04½
68-70 360 endpoint	.04½	.05	.04⅝	.05	.04¾	.05
64-66 437 endpoint (blend)	.03¼	.03½	.03½	.03¾	.03⅝	.03¾
***NORTH LOUISIANA—**						
58-60 437 endpoint (U. S. Motor)	.03¾	.04	.04	.04¼	.04¼	.04¾
***ARKANSAS—**						
58-60 437 endpoint (U. S. Motor)	.03¾	.04	.04	.04¼	.04¼	.04⅝
PENNSYLVANIA—						
52-54 Naphtha	.05¾		.05¾		.05¾	
54-56 Naphtha	.05¾		.05¾		.05¾	
58-60 Gasoline	.05¾		.05¾		.05¾	
60 Gasoline	.06		.06		.05¾	
62 Gasoline	.06		.06		.06	
64 Gasoline	.06¼	.06½	.06¼	.06½	.06¼	.06½
68-70 350 endpoint gasoline	.07		.07		.07¼	
CALIFORNIA—						
†54-58 437 endpoint (U. S. Motor) domestic	.05	.06	.05	.06	.05½	.06½
†58-62 400 endpoint domestic gasoline	.07	.09	.07	.09	.08	.09½
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.03½	.03⅝	.03⅝	.03¾	.03¾	.04
56-58 450 endpoint	.03½	.04	.03½	.04	.03⅝	.03⅞
58-60 437 endpoint (U. S. Motor)	.03½	.04	.03⅝	.04¼	.03¾	.04⅛
60-62 400 endpoint	.03¾	.04¼	.03¾	.04¼	.04	.04¼
64-66 375 endpoint	.04¼	.04¾	.04⅜	.04¾	.04¼	.04½
64-66 437 endpoint (blend)	.03½	.04	.03½	.04	.03¾	
68-70 360 endpoint	.04⅝	.05	.04¾	.05¼	.04¾	.05
GULF COAST (Export)—						
58-60 U. S. Motor	.04½	.05	.04½	.05	.04½	.05
60-62 400 endpoint	.04¾	.05	.04¾	.05	.04¾	.05¼
61-63 390 endpoint	.05⅛		.05⅛		.05⅛	
64-66 375 endpoint	.05⅞	.06	.05⅞	.06	.05⅞	.06

*Louisiana, Arkansas, Mississippi and East Texas delivery. †For local consumption.

NATURAL GASOLINE

	Mar. 17		Mar. 10		Mar. 3	
OKLAHOMA (Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.03		.03¼	.03⅜	.03¼	.03½
Grade AA, 80-87.9, 375 e.p., rec. 90%	.02¾		.03		.03	
Grade B, 76-83.9, 375 e.p., rec. 85%	.02½		.02½		.02⅝	.02¾
Grade BB, 84-92, 375 e.p., rec. 85%	.02⅝		.02½		.02½	
Grade C, 80-92, 375 e.p., rec. 78%	.02¼	.02⅜	.02½		.02½	
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.03		.03¼		.03¼	.03½
Grade AA, 80-87.9, 375 e.p., rec. 90%	.02¾		.03		.03	
Grade B, 76-83.9, 375 e.p., rec. 85%	.02½		.02½		.02½	
Grade BB, 84-92, 375 e.p., rec. 85%	.02⅝		.02½		.02½	
Grade C, 80-92, 375 e.p., rec. 78%	.02¼		.02½		.02½	
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.03		.03¼		.03¼	.03½
Grade BB, 84-92, 375 e.p., rec. 85%	.02½		.02½		.02⅝	
Grade C, 80-92, 375 e.p., rec. 78%	.02½		.02½		.02½	
CALIFORNIA—						
75-78 375-390 endpoint	.04½	.05½	.04½	.05½	.05	.06
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.03		.03¼		.03¼	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.02¾		.03		.03	
Grade BB, 84-92, 375 e.p., rec. 85%	.02⅝		.02½		.02½	

BURNING OIL

	Mar. 17		Mar. 10		Mar. 3	
OKLAHOMA (Group 3)—						
41-43 water white kerosene	.02¾	.03	.02¾	.03	.02⅞	.03
42-44 water white kerosene	.02⅞	.03⅛	.03	.03¼	.03¼	
NORTH TEXAS—						
41-43 water white kerosene	.02½	.03	.02½	.03	.02¾	.03
40-41 water white kerosene	.02⅝	.02¾	.02⅝	.02¾	.02⅝	.02¾
***NORTH LOUISIANA—**						
41-43 water white kerosene	.03⅛	.03¼	.03⅛	.03½	.03¼	.03¾
***ARKANSAS—**						
41-43 water white kerosene	.03⅛	.03¼	.03⅛	.03½	.03¼	.03¾
PENNSYLVANIA—						
43 Kerosene prime white	.04¾		.04¾		.04¾	
45 Kerosene water white	.04¾	.04⅞	.04¾	.04⅞	.04¾	.04⅞
46 Kerosene water white	.05		.05		.05	.05¼
CALIFORNIA—						
38-40 water white Kero. (high burning test)	.04¾	.06	.04¾	.06	.04¾	.06
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white kerosene	.02¾	.03	.02⅞	.03½	.02⅞	.03
42-44 water white kerosene	.03	.03⅛	.03	.03¼	.03¼	
GULF COAST (Export)—						
41-43 prime white	.04½		.04½		.04½	
44 water white	.05¼		.05¼		.05¼	

*Louisiana, Arkansas, Mississippi and East Texas delivery.

FUEL OIL

	Mar. 17		Mar. 10		Mar. 3	
OKLAHOMA (Group 3)—						
Below 18 gravity Fuel Oil, per bbl.	.40	.45	.40	.45	.40	.45
18-22 Fuel Oil, per bbl.	.42½	.50	.42½	.50	.42½	.50
20-22 Fuel Oil, per bbl.	.45	.55	.45	.55	.45	.55
22-26 Fuel Oil, per bbl.	.50	.60	.50	.60	.50	.60
24-26 Fuel Oil, per bbl.	.57½	.62½	.57½	.65	.57½	.65
26-30 Fuel Oil, per bbl.	.62½	.67½	.65	.70	.65	.70
28-30 Fuel Oil, per bbl.	.67½	.75	.75	.85	.75	.85
32-36 Gas Oil (industrial)	.01⅝	.01¾	.01¾	.02	.01¾	.02
32-36 Gas Oil (straw color, high cold test)	.01¾	.02	.01⅞	.02	.01⅞	.02
32-36 Gas Oil (straw color, low cold test)	.02¼	.02½	.02⅝	.02½	.02⅝	.02½
36-38 Distillate	.02¼	.02½	.02¼	.02½	.02¼	.02½
38-40 Straw Distillate	.02⅝	.02⅞	.02½	.02⅞	.02½	.02⅞

*Prices on fuel oil above 40 cold test usually from 5 to 10 cents under general quotations.

NORTH TEXAS—						
Below 20 gravity Fuel Oil, per bbl.	.30	.35	.30	.35	.30	.35
24-26 Fuel Oil, per bbl.	.40	.45	.45	.50	.45	.50
32-36 Gas Oil (industrial)	.01½	.01¾	.01¾	.02	.01¾	.02
38-40 Straw Distillate	.02¼	.02½	.02⅝	.02¾	.02⅝	.02¾
***NORTH LOUISIANA—**						
18-20 Fuel Oil, per bbl.	.60	.70	.70	.75	.70	.75
30-32 Gas Oil (low cold test)	.02½	.02¾	.02⅝	.02¾	.02⅝	.02¾
***ARKANSAS—**						
33-36 Distillate	.02⅝	.02¾	.02¾	.03	.02¾	.03
30-32 Gas Oil	.02¼	.02½	.02¼	.02⅝	.02¼	.02⅝
16-22 Refinery Fuel Oil, per bbl.	.60	.65	.60	.65	.60	.65
GULF COAST (South Texas)—						
Gas Oil	.03	.03⅛	.03⅛	.03¼	.03⅛	.03¼
Bunker C Fuel (cargo lots), per bbl.	.65	.70	.65	.70	.65	.70
Bunker C Fuel (small lots)	.90		.90		.90	
PENNSYLVANIA—						
30-34 Fuel Oil	.03⅛		.03⅛		.03⅛	
36-40 Fuel Oil	.03¼		.03¼		.03¼	
CALIFORNIA—						
33-36 Distillate	.02	.02½	.02	.02½	.02	.02½
26-32 Distillate	.01¾	.02	.01¾	.02	.01¾	.02
15-19 Fuel Oil, Bunker (at tidewater), bbl.	.55	.90	.55	.90	.60	.90
15-19 Fuel Oil (cargo lots, at tidewater), bbl.	.55	.80	.55	.80	.55	.80
†15-19 Fuel Oil, f.o.b. tank cars	.25	.70	.25	.70	.35	.75
27 plus Diesel, per bbl.	.75	1.00	.75	1.00	.80	1.05
30-34 Gas Oil	.80	1.10	.80	1.10	.85	1.15
CHICAGO DISTRICT (Based on Group 3)—						
18-22 Fuel Oil, per bbl.	.37½	.45	.42½	.50	.45	.55
22-26 Fuel Oil, per bbl.	.50	.55	.50	.55	.55	.60
28-30 Fuel Oil, per bbl. (zero)	.70	.75	.75	.85	.80	.85
32-36 Gas Oil (industrial)	.01¾	.01⅞	.01¾	.02	.01¾	.02
32-36 Gas Oil (zero)	.02¼	.02½	.02⅝	.02½	.02⅝	.02½
38-40 Straw Distillate	.02½	.02¾	.02½	.02¾	.02⅝	

*Louisiana, Arkansas, Mississippi and East Texas delivery. †Lowest priced fuel oil has high sulphur content.

LUBRICATING OIL AND WAX

	Mar. 17		Mar. 10		Mar. 3	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.05	.05½	.05	.05½	.05	.05½
100 vis., 3 color, 20-25 cold test	.04¾	.05	.04¾	.05	.04¾	.05
150 vis., 3 color, 20-25 cold test	.07		.07		.07	
150 vis., 4 color, 20-25 cold test	.06½		.06½		.06½	
180 vis., 4 color, 23-28 cold test	.08½		.08½		.08½	
180 vis., 4 color, 23-28 cold test	.08		.08		.08	
180 vis., 5 color, 23-28 cold test	.07¼	.07½	.07¼	.07½	.07¼	.07½
200 vis., 3 color, 23-28 cold test	.09¾	.10	.09¾	.10	.09¾	.10
200 vis., 4 color, 23-28 cold test	.09½		.09½		.09½	
200 vis., 5 color, 23-28 cold test	.09		.09		.09	
240 vis., 3 color, 25-30 cold test	.13¼	.13½	.13¼	.13½	.13¼	.13½
240 vis., 4 color, 25-30 cold test	.12¼	.12½	.12¼	.12½	.12¼	.12½
240 vis., 5 color, 25-30 cold test	.11¼	.11½	.11¼	.11½	.11¼	.11½
280 vis., 3 color, 25-30 cold test	.15½		.15½		.15½	
280 vis., 4 color, 25-30 cold test	.14½		.14½		.14½	
280 vis., 5 color, 25-30 cold test	.13½		.13½		.13½	
Cylinder Stocks:						
600, steam refined, light green	.06	.07	.06	.07	.06	.07
600, steam refined, dark green	.04½	.05½	.04½	.05½	.04½	.05½
190-200 vis., D color, Bright Stocks	.25		.25		.25	
150-160 vis., D color, Bright Stocks 0-10 c.t.	.18	.19	.18	.19	.18	.19
150-160 vis., D color, Bright Stocks 10-25 c.t.	.17	.18	.17	.18	.17	.18
150-160 vis., D color, Bright Stocks 25-40 c.t.	.16½	.17½	.16½	.17½	.16½	.17½
150-160 vis., E color, Bright Stocks	.17	.18	.17	.18	.17	.18
Waxes:						
124-126 White Crude Scale Wax	.01¾	.02	.02	.02⅛	.02	.02⅛

All bright stock prices are for domestic movement.

PENNSYLVANIA—						
34 Neutral	.05½	.06	.05½	.06	.05½	.06
34 Sundebloom	.05½		.05½		.05½	
36 Miners' Neutral	.05½		.05½		.05	.05½
150, 3 color	.16	.18	.15½	.16½	.14	.16
180, 3 color	.18	.19	.18½	.19½	.16	.17
200, 3 color	.21	.22	.20	.21	.18½	.19
220, 3 color	.26	.27	.25	.26	.23	.24
600, steam refined	.08¼	.08½	.08¼	.08½	.08½	.09
650, steam refined	.12		.12		.12	.13
600, Pennsylvania Flash	.13		.13		.13	.14
630, Pennsylvania Flash	.18	.18½	.18½	.19½	.18½	.19½
600, E filtered	.12		.12		.12	
600, D filtered, Oil City	.17		.17		.17	.18
Pennsylvania Bright Stocks below 35 c.t.	.18½		.18		.18	.19
Pennsylvania Bright Stocks above 35 c.t.	.18		.17		.17	
*122-124 White Crude Scale Wax	.02¼		.02¼		.02¼	
124-126 White Crude Scale Wax	.02¼		.02¼		.02¼	

*At New York.

GULF COAST (South Texas)—						
100 vis., 2-2½ color, pale oil	.06	.06¼	.06	.06¼	.06	.06¼
200 vis., 3 color, pale oil	.08¼	.08½	.08¼	.08½	.08¼	.08½
300 vis., 3 color, pale oil	.09½	.09¾	.09½	.09¾	.09½	.09¾
500 vis., 3½ color, pale oil	.10¾	.11	.10¾	.11	.10¾	.11
750 vis., 3½ color, pale oil	.12¼	.12½	.12¼	.12½	.12¼	.12½
1,200 vis., 3½ color, pale oil	.14¾	.15	.14¾	.15	.14¾	.15
2,000 vis., 4 color, pale oil	.15¾	.16	.15¾	.16	.15¾	.16
200 vis., 5-6 color, red oil	.07½	.07¾	.07½	.07¾	.07½	.07¾
300 vis., 5-6 color, red oil	.08¾	.09	.08¾	.09	.08¾	.09

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

500 vis., 5-6 color, red oil	.10	.10¼	.10	.10¼	.10	.10¼
750 vis., 5-6 color, red oil	.11	.11¾	.11	.11¾	.11	.11¾
1,200 vis., 5-6 color, red oil	.13¾	.14	.13¾	.14	.13¾	.14
2,000 vis., 6 plus color	.15¾	.16	.15¾	.16	.15¾	.16
CALIFORNIA—						
130 vis., 2½-3 color	.09	.09½	.09	.09½	.09	.09½
200 vis., 2½-3 color	.10	.10¾	.10	.10¾	.10	.10¾
300 vis., 3-3½ color	.10¾	.11½	.10¾	.11½	.10¾	.11½
350 vis., 3½-4 color	.11½	.11¾	.11½	.11¾	.11½	.11¾
400 vis., 3½-4 color	.12¼	.12¾	.12¼	.12¾	.12¼	.12¾
Red Neutral:						
200 vis., 4½-5 color	.09½	.10	.09½	.10	.09½	.10
300 vis., 5-6 color	.10¼	.10¾	.10¼	.10¾	.10¼	.10¾
400 vis., 5-6 color	.11	.12	.11	.12	.11	.12
500 vis., 4½-5 color	.12¼	.13	.12¼	.13	.12¼	.13
500 vis., 5-6½ color	.12	.12¾	.12	.12¾	.12	.12¾
600 vis., 6½ plus color	.13	.14	.13	.14	.13	.14

Note—Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	Mar. 17		Mar. 10		Mar. 3	
Gasoline, U. S. Motor, 58-60, 437 e.p.	.07	.08	.06¾	.07½	.07½	.08
Kerosene, water white, 41-43	.06	.06½	.06¼	.06½	.06¼	.06½
*Fuel Oil, Bunker "C," 41-43	1.05		1.05		1.05	
†Fuel Oil, Diesel, 28-30, per bbl.	1.85		1.85		1.85	
Gas Oil, 28 gravity plus	.04¼	.05¼	.04¼	.05¼	.04¼	.05¼
25 pale Paraffin Oil, tank car	.10½		.10½		.10½	
28 pale Paraffin Oil, tank car	.07¼		.07¼		.07¼	
280 red Paraffin Oil, tank car	.12½		.12½		.12½	
250 red Paraffin Oil, tank car	.11½		.11½		.11½	
225 red Paraffin Oil, tank car	.10		.10		.10	
200 red Paraffin Oil, tank car	.09¼		.09¼		.09¼	
Domestic heating oil, min. 32 grav., tank car	.04½		.04½		.04½	
Refined Wax:						
120-122 a.m.p., per lb.	.03		.03		.03	
125-127 a.m.p., per lb.	.03⅜		.03⅜		.03⅜	
130-132 a.m.p., per lb.	.03⅝		.03⅝		.03⅝	
133-135 a.m.p., per lb.	.04⅜		.04⅜		.04⅜	
135-137 a.m.p., per lb.	.04¾		.04¾		.04¾	
Petrolatum in barrels in carload lots, per pound:						
Dark Green	.01¾		.01¾		.01¾	
Amber	.03		.03		.03	
Extra Amber	.03¼		.03¼		.03¼	
Cream	.06		.06		.06	
Lily White	.06¾		.06¾		.06¾	
Snow White	.08		.08		.08	

*Lighterage 5 cents a barrel extra. †Lighterage 6.5 cents a barrel.

NEW YORK (BAYONNE) EXPORT PRICES

	Mar. 17	Mar. 10	Mar. 3
600, steam refined cylinder stocks, in bbls.	.16½	.16¾	.16¾
635, steam refined	.17	.17½	.17½
650, steam refined	.20	.20½	.20½
600, Pennsylvania Flash	.21	.21	.21
630, Pennsylvania Flash	.27	.28	.28
600, Warren E	.21	.22	.22
600, Oil City E	.20	.21	.21
Light 140-150 Bright Stocks	.25½ .26	.25½ .26	.25½ .26
Dark 140-150 Bright Stocks	.23½ .24	.23½ .24	.23½ .24

LOS ANGELES EXPORT PRICES

	Mar. 17	Mar. 10	Mar. 3
Kerosene, water white	.04¾ .06	.04¾ .06	.04¾ .06
*U. S. Motor Gasoline, 53-55, 437 e.p.	.04¾ .06¾	.04¾ .06¾	.04¾ .06¾
*60-62, 400 endpoint gasoline	.05¾ .07½	.05¾ .07½	.05¾ .07½

*For coastwise shipment.

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

Rusk County, Tex.* (Feb. 10, 1931)...$ .40
Corsicana heavy (March 10, 1931)† .... .45
Other fields.....See gravity table

*Posted by Panola Pipe Line Co. †Magnolia Petroleum Co.

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchinson Counties.....See gravity table

WEST TEXAS

Iatan*.....Same as North Texas
Crane-Upton-Crockett, Howard and Glasscock and Ector (Mar. 10, 1931)†....$ .35
Winkler and Pecos, Tex., and Lea County, N. Mex. (Mar. 10, 1931)†..... .40

*Includes Westbrook Field. †Posted by Humble Oil & Refining Co.

ARKANSAS-NORTH LOUISIANA

Smackover (all grades) (Mar. 10, 1931) .$ .45
Carterville, Sarepta and Cotton Valley, below 36 gravity.....See gravity table
March 10, 1931 ..... .45
Urania (Oct. 30, 1930)..... .75
Calion, heavy (March 10, 1931) ..... .45
East El Dorado (March 10, 1931) ..... .45
Other fields.....See gravity table

Note—Smackover and Bellevue posted by Standard Oil Co. of Louisiana and Magnolia Petroleum Co.; Urania posted by Louisiana Oil Refining Corp.; East El Dorado posted by Gulf Refining Co. and Magnolia Petroleum Co.; Calion posted by Gulf Refining Co.

GULF COAST

Grade A (Jan. 14)*.....$ .80
Grade B, 25° and upward..See gravity table
Jennings, La. (Oct. 30, 1930)†..... .80
Refugio (light).....Same as Grade B
Refugio (heavy) (Jan. 14)*..... .69
Markham (Mar. 10, 1931)‡..... .50
High Island (Oct. 30, 1930)†..... .75

*Humble Oil & Refining Co. †Gulf Refining Co. of Louisiana. ‡Texas Pipe Line Co.

SOUTH CENTRAL AND SOUTHWEST TEXAS

Darst Creek (Mar. 10, 1931)*.....$ .60
Luling (Mar. 10, 1931)† ..... .45
Mirando (Jan. 14)*..... .69
Pettus (Mar. 10, 1931)*..... .95
Salt Flat (Mar. 10, 1931)*..... .60
Thrall‡ .....
Lytton Springs (Lockhart) See gravity table
Dobrowolski (Oct. 25, 1930)‖.....
Same as Mid-Continent gravity scale up to and including 38-38.9° at..... 1.01
Somerset (Oct. 25, 1929)¶.....
Same as Mid-Continent gravity scale up to and including 38-38.9° at..... 1.01

*Posted by Humble Oil & Refining Co. and Magnolia Petroleum Co. †Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co. ‡Thrall prices same as North Central Texas less 15½ cents per cwt. freight. ‖Grayburg Oil & Refining Co., Pioneer Oil & Refining Co. and Texas Petroleum Products Co. ‖Pioneer Oil & Refining Co.

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.

Iles (Feb. 15, 1930):
33 gravity and above.....$ .87
Under 33 gravity..... .65
Dutton Creek (Oct. 28, 1930)..... 1.01
Rock Creek, Wyo. (Mar. 5, 1931)..... .66
Salt Creek.....See gravity table
Big Muddy (Mar. 5, 1931)..... .65
Grass Creek, heavy (July 27, 1928)..... .90
Grass Creek, light (Mar. 5, 1931)..... .90
Mule Creek (May 21, 1929)..... 1.20
Elk Basin (Mar. 5, 1931)..... .90
Lance Creek (Mar. 5, 1931)..... .92
Poison Spider (Mar. 14, 1927)..... 1.00
Notches (Mar. 14, 1927)..... .65
Dallas-Derby (Jan. 1, 1931)..... .70
Hudson (Jan. 1, 1931)..... .75
Rex Lake (Feb. 22, 1930)..... 1.10
Osage (Nov. 1, 1930)..... .85
Lost Soldier (Mar. 6, 1931)..... .55
Hamilton Dome (Mar. 14, 1927)..... .85
Greybull (Oct. 28, 1930)..... 1.35
Torchlight (Oct. 28, 1930)..... 1.25
Cat Creek (Oct. 28, 1930)..... 1.25
Pondera (Mont.) (Oct. 28, 1930)..... 1.45
Sunburst (Mont.) (Oct. 28, 1930)..... 1.55

(Continued on Page 120)

CRUDE OIL GRAVITY TABLE

Gravity—	Kansas, Oklahoma, North Central, East Central Texas 1	North Louisiana-Arkansas 2	Carson and Hutchinson (Texas Panhandle) 3	Gray County (Texas Panhandle) 4	Salt Creek, Wyoming 5	Stephens, Arkansas 6	Grade B, Gulf Coast 7
Below 25	....	....	....	....	....	....	$.69
25 to 25.9	....	....	....	....	....	....	.71
26 to 26.9	....	....	....	....	....	....	.73
27 to 27.9	....	....	....	....	....	....	.75
28 to 28.9	....	....	....	....	....	....	.77
Below 29	$.43	$.43	....	....	....	$.54	....
29 to 29.9	.45	.45	....	....	$.45	.58	.79
30 to 30.9	.47	.47	....	....	.47	.62	.81
31 to 31.9	.49	.49	....	....	.49	.66	.83
32 to 32.9	.51	.51	....	....	.51	.70	.85
33 to 33.9	.53	.53	....	....	.53	....	.87
34 to 34.9	.55	.55	$.38	$.43	.55	....	.89
35 to 35.9	.57	.57	.40	.45	.57	....	.91
36 to 36.9	.59	.59	.42	.47	.59	....	.93
37 to 37.9	.61	.61	.44	.49	.61	....	.95
38 to 38.9	.63	.63	.46	.51	....	....	.97
39 to 39.9	.65	.65	.48	.53	....	....	.99
40 and above	.67	.67	.50	.55	....	....	1.01

Column 1—Stanolind Crude Oil Purchasing Co. posted above prices on March 5, effective in Kansas, Oklahoma, North Texas, Central Texas and East Central Texas, where it purchases oil. Magnolia Petroleum Co. posted same day but with these differences: Below 26 degrees, 40 cents; 26-26.9 degrees, 41 cents; 27-27.9 degrees, 42 cents; 28-28.9 degrees, 43 cents. Mid-Continent Petroleum Co., Tidal Oil Co., Tidal Western Oil Co., Continental Oil Co., H. F. Wilcox Oil & Gas Co., Eason Oil Co., Standard Oil Co. of Kansas, Sinclair Refining Co., White Eagle Oil Corp., and Producers Oil Co. met the price on March 6, Champlin Refining Co. on March 7, Carter Oil Co., The Texas Company, Humble Oil & Refining Co., Empire Pipe Line Co., Gypsy Oil Co., and Gulf Pipe Line Co. met Stanolind prices on March 10. Pure Oil Co. posted same schedule in Van, Texas, Pool, March 5.

Column 2—Standard Oil Co. of Louisiana and The Texas Company posted on March 10. Standard prices apply to Caddo, Homer, Haynesville, Bull Bayou, Sabine, Crichton, DeSoto, El Dorado, Cotton Valley, Sarepta and Carterville.

Column 3—Posted by Humble Oil & Refining Co., March 10. Adopted by other buyers same day.

Column 4—Posted by Humble Oil & Refining Co., March 10. Adopted by other buyers same day.

Column 5—Posted by Midwest Refining Co., March 5, 1931. All crude above 37.9 degrees 61 cents.

Column 6—Posted by Louisiana Oil Refining Co. and Atlantic Oil Producing Co., October 30, 1930.

Column 7—Posted by Humble Oil & Refining Co., January 14, 1931, meeting Gulf Refining Co.'s price schedule posted October 30, 1930.

UNION OIL CO. OF CALIFORNIA

Current Prices for Crude Oil at the Well, Effective 7 a.m. March 15, 1931

Gravity—	Santa Fe Springs 1	Alamitos Hts., Signal Hill, Seal Beach, Torrance, Athens, Rosecrans, Dominguez 2	Montebello, Huntington Beach, East Coyote, Richfield, Brea-Olinda 3	*Playa Del Rey 4	Santa Paula 5	Orcutt 6	Coalinga, McKittrick, Kern River, Midway-Sunset, Elk Hills, Buena Vista Hills, Lost Hills 7	Kettleman Hills 8
11 to 13.9°	....	....	....	....	....	....	$.50	....
14 to 14.9	....	$.65	$.65	....	$.65	$.55	.55	....
15 to 15.9	....	.65	.65	....	.65	.55	.55	....
16 to 16.9	....	.65	.65	....	.65	.55	.55	....
17 to 17.9	....	.65	.65	....	.65	.55	.55	....
18 to 18.9	....	.65	.65	....	.65	.55	.55	....
19 to 19.9	$.65	.65	.65	....	.65	.55	.55	....
20 to 20.9	.66	.66	.66	$.56	.65	.56	.56	....
21 to 21.9	.66	.66	.66	.56	.65	.56	.56	....
22 to 22.9	.66	.66	.66	.56	.65	.56	.56	....
23 to 23.9	.66	.66	.66	.56	.65	.56	.56	....
24 to 24.9	.66	.66	.66	.56	.66	.56	.56	....
25 to 25.9	.67	.67	.67	.57	.66	.57	.57	....
26 to 26.9	.67	.67	.67	....	.66	.57	.57	....
27 to 27.9	.67	.67	.67	....	.66	....	.57	....
28 to 28.9	.67	.67	.67	....	.66	....	.57	....
29 to 29.9	.67	.67	.67	....	.66	....	.57	....
30 to 30.9	.68	.68	.68	....	.67	....	.58	$.58
31 to 31.9	.68	.68	.68	....	.67	....	.58	.58
32 to 32.9	.68	.68	.68	....	.67	....	.58	.58
33 to 33.9	.68	.68	.68	....	.67	....	.58	.58
34 to 34.9	.68	.68	.68	....	....	....	....	.58
35 to 35.9	.69	.69	.69	....	....	....	....	.59
36 to 36.9	.69	.69	....	....	....	....	....	.59
37 to 37.9	.69	.69	....	....	....	....	....	.59
38 to 38.9	.69	.69	....	....	....	....	....	.59
39 to 39.9	.69	.69	....	....	....	....	....	.59
40 and up	.70	.70	....	....	....	....	....	.60

*In all cases a field gathering charge of 5 cents per barrel will be made for receiving and delivering such oil into its Del Rey pipe line system.

(California Prices on Page 124)

TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns Mar. 17

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Chicago*	14.0	15.0	3.0	9.0
Decatur, Ill.	14.4	15.4	3.0	9.0
E. St. Louis	13.7	14.7	3.0	8.2
Joliet	14.4	15.4	3.0	9.0
Peoria	14.4	15.4	3.0	9.0
Quincy	14.2	15.2	3.0	8.8
Davenport, Ia.	14.5	15.5	3.0	9.3
Des Moines	14.5	15.5	3.0	9.3
Keokuk	14.5	15.5	3.0	9.3
Sioux City	14.1	15.1	3.0	8.9
Duluth, Minn.	15.5	16.5	3.0	9.9
Mankato	13.3	16.0	3.0	9.7
Minneapolis	15.2	16.2	3.0	9.9
La Crosse, Wis.	14.2	15.2	3.0	10.0
Milwaukee	13 1	14.1	2 0	8.9
Madison	13.3	14.3	2.0	9.1
Detroit, Mich.	14.5	15.8	3.0	10.7
Grand Rapids	14.7	15.7	3.0	10.6
Saginaw	14.9	15.9	3.0	10.8
Evansville, Ind.	15.1	16.1	4.0	9.9
Indianapolis	15 3	16 3	4 0	10.1
South Bend	15.4	16.4	4.0	10.2
Fargo, N. D.	16.0	16.0	3.0	11.9
Huron, S. D.	16.3	17.3	4.0	10.7
Sioux Falls	15 8	16 8	4 0	10.4
K. C., Mo.	13.9	14.9	3.0	7.6
Springfield†	13.9	14.9	3.0	8.5
St. Louis†	12 9	13.9	2 5	8.3
St. Joseph	13 5	14 5	3.0	7 5
Wichita, Kans.	13 8	13.8	3.0	7.8
Bartlesville, Ok.	13.0	15 0	4 0	7.5

*Effective February 17, discounts on Q.D.A. in Chicago district 2 cents off service station price on purchases of 500 gallons and over; and 4 cents off service station on purchases of 1,000 gallons or more per calendar month.

†State tax 2 cents; remainder city tax.

Effective August 5, the following quantity discounts from the service station prices are allowed on monthly sales of gasoline: 500 gallons or more, 3 cents; 75,000 gallons or more, 4½ cents. Discounts are allowed each month and they are not cumulative. Delivery tickets showing date and quantity delivered must be sent to the seller before the tenth of the month to secure the discounts on the previous month's purchases.

PACIFIC COAST TERRITORY

Standard Oil Co. (California)

	Gasoline			Kero
	Wh'ls'e price	Retail price	Incl'ds tax	tank wagon
Fresno	17.0	15.0	3.0	17.0
San Francisco	17.0	18.0	3.0	15.5
Los Angeles	14.5	12.5	3.0	15.5
Reno, Nev.	22.0	20.0	4.0	19.0
Portland, Ore.	20.5	18.5	4.0	16.5
Seattle, Wash.	17.5	15.5	3.0	16.5
Tacoma	17.5	15.5	3.0	16.5
Spokane	22.0	20 0	3.0	20.5
Phoenix, Ariz.	20.5	22.5	6.0	20.0

Above prices are at company's plant or depots as company does not operate stations. A 4-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 2 cents plus a 2-cent special temporary discount subject to withdrawal at any time.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlanta, Ga.	20.0	22.0	6.0	13.5
Augusta	20.0	22.0	6.0	15.5
Macon	20.0	22.0	6.0	13.0
Savannah	20.0	20.0	6.0	13.0
Birm'ham, Ala.	19.0	21.0	5.0	15.0
Mobile	19.0	21.0	4.0	15.0
Montgomery	19.0	21.0	4.0	15.5
Clarks'le, Miss.	18.0	20.0	5.0	13.5
Jackson	18.0	20.0	5.0	13.5
Natchez	18.0	20.0	5.0	13.5
Gulfport	18.0	18.0	5.0	13.5
Vicksburg	18.0	18.0	5.0	13.0
Jack'ville, Fla.	19.0	21.0	6.0	14.0
Miami	20.0	22.0	6.0	14.0
Pensacola	20.0	20.0	6.0	13.5
Tampa	19.0	19.0	5.0	13.0
Lexington, Ky.	17.0	18.0	5.0	14.5
Covington	17.0	18.0	5.0	13.5
Louisville	16.0	18.0	5.0	11.0
Ashland	17.0	19.0	5.0	13.0
Paducah	17.0	19.0	5.0	13.0
Bowling Green	19.0	21.0	5.0	14.5
Corbin	18.0	19.0	5.0	15.0

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. To Pensacola, Montgomery, Birmingham and Mobile state taxes add 1-cent levy tax. To Gulfport state tax add privilege tax of 2 cents.

Effective April 2, price to dealers 2 cents under posted tank wagon price.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atl'tic City, N. J.	14.5	16.5*	3.0	11.5
Newark	13.5	15.5	3.0	10.5
Annapolis, Md.	16.0	17.0	4.0	11.0
Baltimore	15.2	16.2	4.0	9.5
Cumberland	17.0	18.0	4.0	12.0
Wash'gton, D.C.	13.7	14.7	3.0	10.7
Danville, Va.	17.8	18.8	5.0	11.8
Norfolk, Va.	16.3	17.3	5.0	10.0
Petersburg	17.3	18.3	5.0	11.3
Roanoke	18.0	18.0	5.0	12.0
Richmond	16.7	17.7	5.0	10.7
Charles'n, W.Va.	16.5	17.5	4.0	11.5
Keyser	17.1	18.1	4.0	12.0
Parkersburg	15.2	16.2	4.0	10.2
Wheeling	16.4	17.4	4.0	11.4
Charlotte, N. C.	16.0	17.0	5.0	11.0
Hickory	18.6	19.6	5.0	12.6
Mt. Airy	18.5	19.5	5.0	12.5
Salisbury	18.5	19.0	5.0	12.5
Charleston, S.C.	17.3	18.3	6.0	10.3
Columbia	19.3	20.3	6.0	12.3

Effective February 26, Standard Oil Co. of New Jersey has increased its dealer and commercial account discounts 1 to 3 cents per gallon in Maryland.

A 2-cent per gallon discount off the gasoline tank wagon price is offered to dealers.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
N. Orleans, La.*	17.0	18.0	6.0	12.0
Baton Rouge	16.0	17.0	5.0	13.0
Alexandria†	17.0	18.0	6.0	13.0
Lafayette*	17.0	18.0	6.0	13.0
Lake Charles*	17.0	18.0	6.0	13.0
Shreveport	16.0	17.0	5.0	13.0
Knoxville, Tenn.	18.5	19.5	5.0	15.0
Memphis	16.0	17.0	5.0	12.5
Chattanooga	18.0	19.0	5.0	13.0
Nashville	17.5	18.5	5.0	15.0
Bristol	19 0	20.0	5.0	14.0
Lt. Rock, Ark.	17.0	18.0	6.0	12.0

*Includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax. New Orleans kerosene price also includes 1-cent city tax.

†Gasoline price at Alexandria includes 1-cent tax in Parish of Rapides.

Two-cent discount off gasoline tank wagon price to dealers and commercial accounts.

PENNSYLVANIA-DELAWARE AND PART OF NEW ENGLAND

Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Pittsburgh, Pa.	13.0	15.0	...	13.0
Philadelphia	13.0	15.0	...	12.0
Scranton	13.0	15.0	...	12.0
Allentown	13.0	15.0	...	12.0
Altoona	13.0	15.0	...	12.0
Erie	13.0	15.0	...	12.0
Dover, Del.	16.0	18.0	3.0	12.0
Wilmington	16.0	18.0	3.0	12.0
Springf'd, Mass.	14.5	16.5	2.0	10.0
Worcester	14.3	16.3	2.0	10.0
Boston	13.5	15.5	2.0	10.0
Providence, R.I.	13.7	15.7	2.0	10.0
Hartford, Conn.	14.5	16.5	2.0	10.0
New Haven	14.6	16.6	2.0	10.0

*Includes tax of 3 cents. Pennsylvania tax is collected by the dea'er and paid by him direct to the State. Atlantic Refining Co. recognizes a 2-cent per gallon discount on gasoline from its posted tank wagon markets on sales to dealers for purposes of resale. Atlantic Refining Co. also recognizes a maximum discount of 2 cents per gallon on gasoline to commercial accounts under contract for one year.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Omaha	15.25	17.25	4.0	9.25
McCook	16.75	18.75	4.0	10.75
Norfolk	15.75	17.25	4.0	9.75
N. Platte	16.75	18.75	4.0	10.50
Scottsbluff	16.00	16.00	4.0	10.25

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Ohio points*	15.0	16.0	4.0	†13.0

*Dealers and commercial accounts 2 cents under tank wagon.

†Service station price 14 cents.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Denver, Colo.	13.0	16.0	4.0	12.5
Pueblo	13.0	16.0	4.0	12.0
Grand Junction	18.0	19.0	4.0	17.0
Casper, Wyo.	15.0	18.0	4.0	10.0
Cheyenne	16.0	17.0	4.0	11.5
Butte, Mont.	19.0	22.0	5.0	16.0
Billings	20.0	23.0	5.0	14.5
Great Falls	20.0	23.0	5.0	16.0
Helena	20.0	23.0	5.0	16.0
Salt Lake, Utah	18.0	21.0	3.5	16.0
Albu'que, N. M.	16.0	20.0	5.0	14.0
Boise, Idaho†	21.5	....	5.0	18.0
Twin Falls*	21.5	....	5.0	18.0

*One and one-half cents off tank wagon to dealers at time of delivery. †Boise: Tank wagon price is subject to 1 cent per gallon allowance off all deliveries.

STANOLIND FURNACE OIL IN CHICAGO

All dumps of 50 gallons or more..... .07

Note—Outside Chicago furnace oils discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	12.0	8.0
V.M.&P. naphtha	14.0	9.5
Cleaners' naphtha	16.2	11.0
Stanisol	16.2	11.0

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Dallas, Tex.	15.0	18.0	4.0	11.0
Fort Worth	15.0	18.0	4.0	10.0
Houston	14.0	18.0	4.0	11.0
San Antonio	14.0	18.0	4.0	10.0
El Paso	14.0	18.0	4.0	12.0
Texarkana	16.0	16.0	4.0	11.0
Muskogee, Ok.	12.0	15.0	4.0	9.0
Okla. City	10.0	12.0	4.0	10.0
Tulsa	12.0	15.0	4.0	10.0
Ft. Smith, Ark.	15.0	16.0	6.0	12.0
Little Rock	17.0	18.0	6.0	12.0

One-cent rebate made from posted station prices to cash purchasers in Louisiana, Arkansas and Tennessee.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Albany, N. Y.	16.6	17.6	2.0	15.6
New York*	15.3	15.3	2.0	14.3
Buffalo	15.8	15.8	2.0	14 8
Rochester	16.0	16.0	2.0	14.0
Syracuse	16.8	16.8	2.0	14.8
Boston, Mass.	15.5	15.5	2.0	13.5
Augusta, Me.	15.8	15.8	4.0	14.8
Manch'tr, N. H.	18.4	18.4	4.0	14.0
Burlington, Vt.	19.3	19.3	4.0	15.3

*Prices in steel barrels.

TANK WAGON CHANGES

Standard Oil Co. (Louisiana), effective March 13, reduced the posted tank wagon and service station prices on gasoline in Louisiana, Tennessee and Arkansas as follows: 1.5 cents at New Orleans, Baton Rouge, Alexandria, Lafayette, Lake Charles, Shreveport, Knoxville and Little Rock; 1 cent at Memphis and Bristol, and 0.5 cent at Chattanooga and Nashville. Effective March 5, Standard Oil Co. (Kentucky) reduced the service station price at Jackson, Miss., from 17 cents to 16 cents, and on March 6, the service station price at Tampa, Fla., from 21 cents to 19 cents.

Standard Oil Co. of California, on March 7, reduced tank wagon and service station prices 2 cents at San Francisco, Fresno and Portland; 4 cents at Tacoma and Seattle. Effective March 11, this company made further service station reductions as follows: 2-cent cuts at San Francisco, Los Angeles, Fresno, Portland, Seattle, Spokane and Tacoma.

Atlantic Refining Co., effective March 11, reduced the tank wagon price 1 cent and the service station price 4 cents at the following points: Pittsburgh, Philadelphia, Scranton, Allentown, Altoona, Erie; at Dover, Wilmington, Boston, both markets were reduced 1 cent; at Springfield, Worcester, Hartford and New Haven, both markets were cut 3 cents.

Continental Oil Co., effective March 9, reduced gasoline prices at Pueblo 1 cent. Standard Oil Co. (New Jersey), effective March 12, reduced tank wagon price at Charlotte, N. C., 2.3 cents. On March 8, this company had reduced the service station price at Charlotte 2.3 cents. Effective March 7, the company reduced the service station price at Salisbury 0.5 cent.

Magnolia Petroleum Co. reduced the gasoline tank wagon and station prices to 14 cents and 18 cents in Houston and San Antonio, Tex., March 11 and on the day previous posted the same prices in El Paso. On March 12 the gasoline tank wagon and station prices were reduced 1 cent in Texarkana to 16 cents each. On March 13 the gasoline tank wagon and station prices were reduced to 15 cents and 16 cents in Fort Smith, Ark., and to 17 cents and 18 cents in Little Rock.

CURB PUMPS IN ITALY

There are approximately 17,250 curbside gasoline pumps now in use throughout Italy, 6,000 controlled by an American company, 6,000 by a Netherlands company and 5,000 by a government agency.—C.E.K.

CRUDE OIL PRICES

(Continued from Page 119)

Hogback (N. Mex.) (Oct. 28, 1930)	1.40
Artesia (N. Mex.) (Oct. 28, 1930)	.75
Lea County	.40
Border, Mont.	1.55
Red Coulee, Alberta	1.55

Note—Salt Creek, Osage, Cat Creek, Dallas-Derby, Hudson, Greybull and Hogback posted by Midwest Refining Co. and the remainder by the Ohio Oil Co. Both companies posted Grass Creek light and Elk Basin. Lost Soldier posted by Producers & Refiners Corp. Artesia posted by Ohio Oil Co. and Continental Oil Co. Latter company posted 50 cents per barrel January 1, 1931. Border and Red Coulee posted by Imperial Refining Co. Ohio Oil Co. ceased posting Artesia on March 5, 1931.

EASTERN STATES

Joseph Seep Purchasing Agency
(Effective Nov. 12, 1930)

Penna. Grade Oil in National Transit Lines (Pennsylvania)	$1.85
Penna. Grade Oil in Southwest Pennsylvania Lines (Pennsylvania)	1.80
Penna. Grade Oil in Eureka Pipe Line Lines (West Virginia)	1.70
Penna. Grade Oil in Buckeye Pipe Line Lines (Ohio) (Sept. 14, 1930)	1.45
Corning Grade Oil in Buckeye Pipe Line Co.'s Line (Mar. 11, 1931)	.80
Ragland Grade Oil in Cumberland Pipe Lines (Kentucky)	1.10
Wayne District Oil in Cumberland Pipe Lines	1.17

Tide Water Pipe Co.

Bradford district (Nov. 12, 1930)	$2.15
Allegany district (Nov. 12, 1930)	2.16

Pure Oil Co.

Cabin Creek, W. Va. (Nov. 12, 1930)	$1.70
Kelly Creek, W. Va. (Nov. 12, 1930)	1.70
Bradford Hollow, W. Va. (Nov. 12, 1930)	1.70

MIDDLE WESTERN STATES

Ohio Oil Co.
(Effective Mar. 6, 1931)

Lima	$ .90
Wooster	.99
Illinois	.80
Indiana	.80
Princeton	.80
Plymouth	shut in
Western Kentucky	.75
Midland, Mich.* (Mar. 13, 1931)	.75
Dundee, Mich. (Oct. 26)†	
.....Same as Mid-Continent gravity scale	
Upper and Lower Traverse Sands, Mich. (Oct. 28, 1930)†	
.....Same as Mid-Continent gravity scale	
Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky (Oct. 28)‡	.85
Oil City, Ky.§ (Mar. 7, 1931)	.70
Oil Springs (Canada) (Oct. 28)¶	1.57
Petrolia (Canada) (Oct. 28)¶	1.60
Alberta (Canada)‖:	
50° and above	2.71
45 to 45.9	2.12

*Posted by Pure Oil Co. †Posted by Standard of Indiana for boat shipment. ‡Posted by Paragon Development Co. §Posted by Stoll Refining Co. ¶Posted by Imperial Oil, Ltd. ‖Posted by Imperial Oil, Ltd., and Regal Oil & Refining Co. of Calgary.

MEXICAN CRUDE

Panuco*	$ .56

*F.o.b. ship, based on January transactions and exclusive of taxes and bar dues.

Of Interest to Sales Departments

A.P.I. PLANS TEXT FOR MARKETERS SAFETY WORK

A mannual on accident prevention in marketing will be prepared as quickly as possible according to an announcement by R. C. Donovan, of the Standard Oil Co. of California, chairman of the American Petroleum Institute Committee on Accident Prevention in Marketing. The committee, which held its first meeting last week in connection with the semi-annual meeting of the Marketing Division of the American Petroleum Institute, has outlined the subjects which will be covered in the manual and subcommittees will be appointed immediately to prepare the necessary material.

The manual will cover accident prevention in the construction and operation of marketing properties. Among the subjects to be covered are unloading tank cars at bulk stations, handling of package goods, truck driving, and maintenance and repair of stations.

H. N. Blakeslee, who was recently appointed safety engineer of the American Petroleum Institute with headquarters in the Kirby Building, Dallas, Tex., is secretary of the committee. As another phase of the safety work in marketing, the committee will prepare a standard accident report which will be made available to all marketing companies. Through these reports the committee expects to secure complete data on accidents in marketing.

RUSSIANS NEGOTIATING FOR CHINESE BUSINESS

NEW YORK, Mar. 14.—Intensified competition for Chinese business in kerosene and other refined products is indicated by the disclosure that the Soviet Oil Trust is negotiating with the Kwangwha Petroleum Co. for the shipment of approximately 36,000,000 gallons of kerosene per year into China.

Standard Oil Co. of New York, The Texas Company, and Shell Oil Co., are the principal American shippers of petroleum products into China. According to Shanghai reports the Russian offer to Kwangwha would enable the Chinese company to undersell both American and British marketers in that country.

PYR-OIL COMPANY EXPANDS

Pyr-Oil Co., headed by W. V. Kidder, LaCrosse, Wis., has extended operations to the Atlantic Seaboard and abroad through the organization of Eastern Pyr-Oil Co. with headquarters at 41 Park Row, New York City. Fred F. Harris is in charge of the new offices. This company markets a liquefied colloidal graphite to be used in improving lubricants.

SOVIET TERMINAL IN TURKEY

NEW YORK, Mar. 14.—The Russian Naphtha Syndicate has completed arrangements with the municipal authorities at Constantinople for the establishment of a bulk marine oil terminal at that city.

Soviet petroleum products have attained wide distribution in Turkey, and the Soviet syndicate is planning further expansion of operations in that territory.

ATLAS TO SELL RUMANIAN OIL

NEW YORK, Mar. 14.—Atlas Petroleum Products Co., Ltd., has contracted with the Russian Naphtha Syndicate for the sole distribution of Russian oils throughout South Africa.

The Atlas company will construct a bulk terminal at Cape Town and retail and wholesale distributing plants in various parts of South Africa.

CALIFORNIA SUPERSERVICE STATION IS MODEL FOR PETROLEUM INDUSTRY

What the marketers must build if they are to keep up with industries outside of the oil business which have added the sale of motor fuel and lubricants as a side line, is shown in the photograph of the station just completed in Los Angeles, Calif., by Motor Tires, Inc., operators of a chain of 16 similar outlets.

The superstation occupies a lot 250'x 250'. Two pump islands in the forecourt mount four Wesco meter system dispensers each, and have a combined delivery capacity of 128 gallons of gasoline per minute. The combined storage totals 65,000 gallons. Departments operated in combination with the gasoline and lubricants sales include, an electrical department for testing magnetos or starters, and equipped for charging magnets in magnetos; brake testing equipment; a battery recharging room, and a 64-foot long grease pit. Motor Tires, Inc., are retailers of Goodyear tires.

New superservice station recently opened by a large tire dealer in Los Angeles, Calif.

H. H. RAGLE RE-ELECTED BY MICHIGAN OIL GROUP

H. H. Ragle was re-elected president of the Michigan Oil Men's Association at the annual meeting of the association just concluded at Detroit. Other officers named are A. J. Boergert, A. D. Dubuisson, J. T. Wilson, Peter Jensen and C. E. Reeney, vice presidents. Directors appointed were, C. A. Shierson, J. G. Schindehatte and S. B. Spelding.

Howard A. Coffin, vice president of White Star Refining Co., and L. S. Wescoat, vice president of Pure Oil Co., were the principal speakers in the convention sessions in which discussions of the National Code of Practices for Marketing Refined Petroleum Products featured.

RUMANIA IN MARKET CRISIS

NEW YORK, Mar. 14.—Demoralization in the Rumanian petroleum industry, which has resulted in export sales of gasoline at record low prices, has also affected domestic markets in Rumania, according to reports from Bucharest.

At a recent meeting of representatives of American oil companies held in Bucharest, under the auspices of the ministry of industry and commerce, M. Manoilescue, minister of industry and commerce, stated that unless the oil companies were successful in organizing a cartel for the home markets, the Government itself would be obliged to formulate such a scheme for controlling prices.

DUTCH-SHELL IN COLOMBIA

Petroleum Utensils Co. and Carribean Petroleum Co., subsidiaries of Royal Dutch-Shell Co., have been granted charters to operate in Colombia.

ALCOHOL USE LOWERS FINE

Motorists of Maceio, Brazil, have their fines reduced 50 per cent in traffic violations of minor nature if they are using alcohol motor fuel, a Brazilian product.

DISTRIBUTORS FOR OLD DUTCH

Hughes Oil Co., 844 Rush Street, Chicago, Ill., has been appointed marketer for products of Old Dutch Refining Co., Muskegon, Mich. Distillate, gas oil and fuel oil are manufactured at this plant.

IMPROVED LOCOMOTIVES USE LESS OIL IN 1930

Refinements in locomotive designing since 1920 are reflected in the reports on fuel consumption in the railroad systems, compiled since 1918. As late as 1929 and 1930 a continued improvement is shown. In 1929 the quantity of fuel oil used was 2,568,800,341 gallons, and 14.9 pounds of fuel were required to haul one passenger car a mile. In 1930 the quantity was cut to 2,320,252,497 gallons, and the amount of fuel required for each car was reduced to 14.7 pounds per mile.

The coal bill for the railroads was cut from 112,951,929 tons in 1929, to 97,857,093 tons in 1930.

BRITISH BUILDING HUGE DOCK

NEW YORK, Mar. 14.—More than $1,000,000 will be expended by the Manchester Ship Canal Co. in the construction of a new oil dock at Stanlow. The British Government will aid the company in this development, which will comprise two berths for large tankers, and will triple the present oil handling facilities in the Ship Canal.

There has been an average rate of increase of 25 per cent in the petroleum business of the Manchester Ship Canal since handling of oil products was first undertaken in 1922, according to company officials.

FUEL OIL TAX SOUGHT

CHATHAM, Ontario, Mar. 14.—Representatives of western Canada coal interests are asking the federal government to impose a tax on fuel oil imports. It is claimed that Canada annually imports 156,000,000 gallons of fuel oil which displaces 110,000 tons of Canadian coal. The present tariff is one-half cent a gallon which is rebated if the oil is refined in Canada.

NO CANADIAN FUEL TAX

WASHINGTON, D. C., Mar. 14.—The government of British Columbia has definitely disapproved the proposed tax on domestic fuel oil on the ground that it is unwise under existing conditions. The question of taxing imported fuel oil is left to the dominion government.—C.E.K.

NEW YORK ASSOCIATION RE-ELECTS C. T. WEIHMAN

NEW YORK, Mar. 14.—Clifford T. Weihman of Smith-Weihman Co., Inc., was re-elected president and director of the Oil Trades Association of New York, Inc., at the annual meeting held here this week at the Downtown Athletic Club. Mr. Weihman is the first president of the association to be re-elected during the past 10 years.

William S. Williams of Asiatic Petroleum Corp. was elected vice president and a director. Other officers were elected as follows: Joseph C. Smith, Smith-Weihman Co., Inc., secretary and director; Philip C. Meon, of Borne-Scrymser Co., treasurer and director; and A. J. Squire of Warren Lubricant Co., Inc., a director and chairman of the entertainment committee.

Directors elected were as follows: John W. Baker of the Philippine Refining Corp.; George Suraud of Chelsea Oil & Supply Co.; Edwin Stern of Louis Stern Sons, Inc.; W. H. Correa of Standard Oil Co. of New York; J. W. Saybolt of Standard Oil Co. of New Jersey and H. M. Smith of W. R. Grace & Co.

The directorate of the association was increased from 11 to 13. The annual meeting was preceded by a dinner and vaudeville entertainment, after which the newly elected officers were presented, short addresses being made by several.

U. S. BUREAU PREPARING DATA ON OIL MARKETERS

The Bureau of Foreign and Domestic Commerce is now engaged in compiling data which will give the oil industry valuable information covering the number of stations and the number of concerns and individuals engaged in marketing petroleum products in the United States. The work is the result of a request of the board of directors of the American Petroleum Institute.

The work is in charge of Dr. John W. Frye, who is connected with the minerals section of the bureau. Questionnaires have been sent out and it is hoped that in the near future the bureau will be able to furnish complete data covering the number of bulk and service stations and the concerns operating them.

GERMANY MAKING LUBRICANTS

NEW YORK, Mar. 14. — Increasing production of lubricating oil in Germany has cut materially into that country's purchases in world markets, according to reports received from abroad covering German imports of refined products for 1930.

All major products, with the exception of lubricating oil, showed substantial increases last year as contrasted with 1929 imports. Detailed comparisons follow:

	Metric tons	
	1930	1929
Crude petroleum	333,490	97,991
Gasoline	1,434,670	1,063,363
Kerosene	207,585	148,810
Gas and Diesel oils	462,154	384,757
Lubricating oil	367,828	657,839

Mexico and South American supplied the bulk of the crude imported into Germany last year with 194,822 tons and 129,582 tons respectively. The United States supplied the greatest proportion of gasoline imports, with 699,303 tons, Rumania, Russia, South America, Persia, and Peru also shipping large quantities. More than half of Germany's kerosene imports last year came from the United States, which shipped 136,850 tons, and this country also led in gas oil shipments, at 260,957 tons, and lubricating oil, 229,982 tons.

Report of The Texas Corporation

Revenues Suffered From Extremely Low Gasoline Prices and Other Unfavorable Factors in the Industry During Past Year

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, Mar. 14.—Revenues of the Texas Corp. and subsidiary companies for 1930 suffered substantially from the extremely low gasoline prices and other unfavorable factors which prevailed during the year, says R. C. Holmes, president, in the company's annual report.

Earnings for the year ended December 31, 1930, after deductions for federal income taxes and all reserves, amounted to $15,073,303, or $1.53 per share on the average of 9,850,885 shares outstanding during the year, as compared with $48,318,072 or $5.12 per share on the average of 9,433,164 shares outstanding in 1929.

"In as much as gasoline is the major petroleum product," says Mr. Holmes, in his report, "its sale accounts for the greater part of the company's revenue. In 1930 the average service station price of gasoline, based on 50 representative cities in the United States, exclusive of state taxes, was approximately one and three-quarters cent per gallon under the average price in 1929 and 5 cents under the average price for the period 1921-28, inclusive. In foreign as in domestic markets, prices of petroleum products generally were lower than in the previous year. Considering these facts, it will be readily understood why results were less favorable in 1930.

"The balance sheet shows net working capital of $197,693,508, including cash, securities and notes receivable of $69,452,091, with no bank loans. Total current assets were $229,926,399, with current liabilities of $32,232,890, bearing the ratio of 7.1 to 1.

"The following investment expenditures by divisions of activities were made during 1930:

Producing	$12,632,582.71
Refining	14,258,543.67
Sales—domestic and foreign	21,112,397.53
Tank farms and tankage	235,834.28
Pipe lines	1,154,550.01
Other facilities	1,555,411.09
Total	$50,949,819.29

"Gross crude oil production in 1930 from wells operated by the company aggregated 42,033,877 bbls., as against 50,410,685 bbls. in 1929, a decrease of 8,376,808 bbls. or 16.6 per cent. Our interest in this production, plus our interest in oil produced by others, amounted to 36,603,829 bbls. in 1930, a decrease from the previous year of 6,995,295 bbls., or 16 per cent. On December 31, 1930, our gross daily crude oil production was 97,278 bbls., and in addition we had more than 153,000 bbls. daily shut in, our reasonable potential daily production exceeding 250,000 bbls. At the close of 1929 our gross production was 129,110 bbls., in addition to which we had 43,000 bbls. daily shut in, or a total daily potential production of approximately 172,000 bbls.

"In the light of discoveries made largely during the year, our known crude oil reserves have been materially augmented, notably in Van Zandt County, Texas, Lea County, New Mexico, and St. Landry Parish, Louisiana.

"Proven and undeveloped acreage held on December 31, 1930, amounted to 6,124,560 acres.

"Operations under our contract with the Louisiana Land & Exploration Co. resulted during the year 1930 in the completion of four producing wells. This brings the total completions on these properties to eight oil and two gas wells, and the number of domes or structures proven for oil or gas production to five.

"Our production of natural (casinghead) gasoline amounted during the year to 3,042,028 bbls., a decrease of 3.4 per cent from 1929.

"At the close of 1930, Texas Petroleum Co., a subsidiary, held in Venezuela a total of 140,351 acres of exploration and exploitation concessions. We had at the end of the year, through the California Petroleum Corp. of Venezuela, a one-half interest in 679,568 acres of exploration and exploitation concessions. Total acreage held in Venezuela was reduced during 1930, due to adjustments made in converting certain exploration concessions to an exploitation status, whereby 50 per cent of the exploration concessions were returned to the government as required by law.

"In Colombia, Texas Petroleum Co. held at the end of the year 810,000 acres in fee and under option.

"No major pipe line construction was undertaken during the year. A branch line of 39 miles from our main West Texas-Port Arthur line to the Darst Creek Pool in Guadalupe County, Texas, was completed, and has a daily capacity of 20,000 bbls. The installation of additional stations and equipment on the Texas-Empire pipe line was completed, increasing the daily capacity of this line to 70,000 bbls.

"Crude oil runs to stills increased 111,645 bbls., or 0.2 per cent. The percentage of gasoline manufactured from crude oil run at all company refineries averaged 49 per cent in 1930, as against 48.3 per cent in the previous year.

"Sales volume of all Texaco products in 1930, both domestic and foreign, is considered satisfactory, in view of the economic situation prevailing throughout the world. Texaco Ethyl gasoline was placed on the market in the spring of 1930 and its acceptance has been very satisfactory, and the same applies to our new Texaco motor oil.

"Pursuing our program to have Texaco distribution throughout the length of the 23 principal United States transcontinental highways, our products were available on approximately 36,000 miles of the total of 50,192 miles comprising these 23 major routes at the end of 1930.

"The activities of the company in the field of aviation during the year further focused attention on the airplane as a means of rapid transportation, and at the same time demonstrated the outstanding qualities of Texaco aviation gasoline and Texaco airplane oil. In 1930, flying the monoplane Texaco No. 13 Capt. Frank M. Hawks, the company's aeronautical advisor, established east and west transcontinental speed records as well as various inter-city records. Our aviation products are now on sale at 250 of the major airports in the United States, and are increasingly popular among pilots and aviation companies alike. We likewise have wide distribution of Texaco aerodiesel fuel for use in the Diesel type airplane engine.

"The company's marine equipment, owned and chartered, was operated at capacity until the latter part of 1930, when a reduction in our transportation requirements, coupled with unsatisfactory charter rates, made it advantageous to withdraw gradually from service five company owned vessels ordinarily engaged coastwise. The indications now are that the 'laid-up' tonnage will re-enter its regular service over the first four months of this year. The year was free of major marine accidents.

"Revenue from sulphur operations in which we are interested compared favorably with that of 1929.

"There were 74,970 stockholders as of December 31, 1930, representing an increase during the year of 9,072."

Phillips Petroleum

Report of Phillips Petroleum Co., for year ended December 31, 1930, shows net profit of $3,040,630, after taxes, interest, depreciation, depletion, intangible drilling costs and inventory adjustment, etc., equivalent to 95 cents a share on 2,213,232 average no-par shares of stock outstanding during the year, and 71 cents a share on 4,279,982 shares outstanding at end of year. This compares with net profit in 1929 of $13,212,591, equal to $5.39 a share on the 2,450,430 average shares outstanding during that year and $5.19 a share on 2,543,306 shares outstanding at close of year.

Last year Phillips Petroleum Co. purchased 129,529 shares of its stock in the open market at prices under book value but above present market. It also purchased $1,170,000 of its 5½ per cent debentures of $411,000 Independent Oil & Gas Co. 6 per cent debentures for retirement in 1931. In addition it retired $1,892,000 of 5½ per cent debentures. The company realized approximately $21,000,000 from sale of 675,709 shares of its capital stock offered to stockholders last June.

Current assets at end of the year were $34,639,826, with current liabilities $20,581,499 and a contingent liability of $3,675,000 for notes receivable discounted. Current assets do not include securities of the company purchased or advanced to affiliated but nonowned companies. Notes payable to banks directly or contingently amounted to $13,000,000 at the end of the year. These notes have been refunded, with an additional amount provided for a period of one year, sufficient to complete the company's present program.

From earnings $2,644,730 was deducted on account of writing inventories down to market December 31, 1930.

The company has advanced Phillips Pipe Line Co. and Phillips Natural Gas Co. considerable money and has option on all their properties at cost. Gasoline line of Phillips Pipe Line Co. from Panhandle, Tex., to St. Louis, and that of Great Lakes Pipe Line Co., in which Phillips Natural Gas Co. has a small interest, are nearing completion and deliv-

(Continued on Page 124)

STANDARD OIL STOCKS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

1931 High	1931 Low	Week ended March 11 Sales	Week ended March 11 High	Week ended March 11 Low	Week ended March 11 Close	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1928 High	1928 Low	1929 High	1929 Low	1930 High	1930 Low
½	⅛	100	¼	¼	¼	Atlantic Lobos		499,448	N.P.	....	5-28-30	..	..	..	..	1	⅛
12⅞	10	100	10¼	10¼	10¼	Borne Scrymser		$1,000,000	$25	$1SA	10-15-30	56½	44½	46½	25	25	11¼
48	40	100	48	48	48	Buckeye Pipe Line		$10,000,000	$50	$1Q	12-15-30	76	53	74½	55	69	39⅞
125	110	100	125	125	125	Chesebrough Mfg.		$3,000,000	$25	$1Q	12-30-30	161	117	210	130	184⅞	104¼
30	20⅝	100	25	25	25	Cumberland Pipe Line		$1,500,000	$50	50cQ	12-15-30	114	67	75¾	40	65¾	20¼
29¾	27	‖50	28	28	28	Eureka Pipe Line		$5,000,000	$100	$1Q	2- 2-31	88	64¼	70½	42	54¾	26
2⅞	1⅞	100	2½	2½	2½	Galena Signal Oil		$16,000,000	$100	....	.....	13	4¼	6½	3	7	2½
72	56¾	100	57	57	57	Humble Oil & Refining		$74,103,300	$25	50cQ	1- 2-31	114¾	59½	128	74⅛	119	57¼
18¼	15⅝	900	15½	15½	15½	Imperial Oil of Canada	(sh)	26,421,768	N.P.	12½cQ	3- 2-31	104	56¾	41	22	30	15
21⅛	16	100	19⅛	19⅛	19⅛	Indiana Pipe Line		$3,000,000	$10	50cQ	2-14-31	91⅞	74⅜	41⅞	26	41	14½
15½	12½	3,000	12⅝	12½	12½	International Petroleum	(sh)	14,247,088	N.P.	25cQ	12-15-30	55	35	30⅜	15	24	11⅜
14	12¼	200	13⅛	13⅛	13⅛	National Transit		$6,362,500	$12.50	25cQ	12-15-30	32⅜	19⅜	25⅛	10⅛	22⅜	11½
14½	10¼	300	11⅞	10⅜	11⅞	New York Transit		$1,000,000	$10	40cQ	1-15-31	75	38½	17½	10	21⅜	10⅛
30	28	‖50	29¼	29¼	29¼	Northern Pipe Line		$2,000,000	$50	$2SA	1- 2-31	69	56½	63	41	54	26¼
15½	13⅛	100	13½	13½	13½	Penn Mex Fuel		$10,000,000	$25	....	12-15-30	84	28	44½	20	32	12
7½	6	100	7¼	7¼	7¼	Solar Refining		$4,000,000	$25	....	12-20-29	..	..	50	29	33	4⅞
14	10	800	12½	12⅛	12¼	Southern Pipe Line		$1,000,000	$10	50c	3- 2-31	19	15	22½	13	20⅞	8⅜
23⅞	18⅝	100	19¼	19¼	19¼	South Penn Oil		$30,000,000	$25	50cQ	12-31-30	71⅞	36¾	60¼	35⅛	45⅞	16⅛
36	33	100	36	35¼	36	Southwest Pennsylvania Pipe Line		$1,750,000	$50	$1Q	12-31-30	102	70	70	60	64	32
38½	31⅝	4,100	32⅛	31¾	31⅞	Standard Oil of Indiana		$348,175,069	$25	50cQ	12-15-30	95⅞	70⅞	68	45	59⅝	30
23⅝	20⅜	600	22¾	22	22⅝	Standard Oil of Kentucky		$25,654,516	$10	40cQ	12-31-30	179¾	122¼	46⅞	29	40½	18⅝
36½	33⅛	100	33¼	33¼	33¼	Standard Oil of Nebraska		$4,649,225	$25	50cQ	12-31-30	54⅞	39⅞	50¼	40	48⅞	34⅝
62½	49¾	200	54	53¾	53¾	Standard Oil of Ohio		$14,000,000	$25	62½cQ	1- 2-31	134	71	129	60	108½	43¼
		No sales.				Swan-Finch Co.		$861,466	$25	....	1-15-29	23½	16	18	10	10	4
69¾	52⅝	6,300	57	54⅝	55	Vacuum Oil Co.		$126,180,350	$25	$1Q	12-20-30	111	72	133¾	75	97⅞	45⅝

*Plus 50 cents extra. †Plus 10 cents extra. ‡Plus 25 cents extra. ‖Unit of trading less than 100 shares. x Ex-dividend.

INDEPENDENT OILS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

1931 High	1931 Low	Week ended March 11 Sales	High	Low	Close	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1928 High	1928 Low	1929 High	1929 Low	1930 High	1930 Low
1¾	⅝	500	1½	1¼	1¼	American Maracaibo	(sh)	700,000	N.P.	....	.....	9½	3⅛	8⅝	1⅛	4½	½
16⅞	14⅛	100	14⅛	14⅛	14⅛	British American Oil Corp.		1,311,321	N.P.	20cQ	1- 2-31	55	32¾	62	7⅞	23	13⅝
2⅜	½	4,500	1½	1¼	1¼	Carib Syndicate		$131,250	25c	....	.....	4½	3⅞	4⅞	1	2⅜	⅝
20¾	15	10,700	18¼	17¾	17⅞	Cities Service	(sh)	24,290,359	N.P.	30cA†	3- 2-31	90⅞	54	68⅛	20	44¼	13⅛
84¾	79¾	200	83⅝	83½	83½	Cities Service pfd.	(sh)	1,500,000	N.P.	50cM	3- 2-31	103¼	94½	98¾	84	93⅞	78¼
½	7/16	400	5/16	5/16	5/16	Colombia Syndicate		$2,000,000	$1	....	.....	3¼	.76	2	½	¾	⅛
2¾	2	300	2	2	2	Consolidated Royal		$5,000,000	$10	7½cQ	1-25-31	8⅞	6¼	11⅛	2½	5⅞	2
3½	3	600	3¼	3	3¼	Creole Petroleum	(sh)	5,977,873	N.P.	....	.....	17½	9½	11¾	5⅝	7⅝	3
⅝	⅜	100	½	½	½	Crown Central		.....	....	....	.....	..	..	..	..	..	..
5	4	100	4	4	4	Darby Petroleum		1,019,392	N.P.	....	10-15-30	33½	3¼	26	6½	21¾	4¾
6	2⅝	200	4	4	4	Derby Oil & Refining	(sh)	500,000	N.P.	....	.....	2¼	1	11	2	11	2
32½	30	‖75	32½	30	30	Derby Oil & Refining pfd.		48,500	N.P.	....	.....	21⅛	7½	44	20¾	60	30
75½	63¾	600	65¼	65	65	Gulf Oil Corp.	(sh)	4,504,921	$25	37½cQ	1- 1-31	165	101⅛	209	115	166⅞	58½
⅝	⅜	1,600	⅝	½	½	Intercontinental Petroleum		$5,682,000	$5	....	.....	3⅜	1	2⅞	⅜	1¾	⅝
1⅞	⅝	500	1½	1½	1½	Kirby Petroleum	(sh)	750,000	N.P.	....	.....	3	1¼	3⅝	1¼	3	⅞
1⅜	⅝	1,200	1⅜	1⅜	1⅜	Leonard Oil & Development		$50,000,000	$25	....	.....	9⅜	5⅛	6⅛	1	4¾	½
6¾	5⅝	100	6⅛	6⅛	6⅛	Lion Oil & Refining	(sh)	250,000	N.P.	....	10-27-30	43⅞	20	38⅞	18	29	4⅞
25	22½	1,100	24⅛	23⅛	24	Lone Star Gas (new)	(sh)	5,000,000	N.P.	25cQ	12-31-30	69⅛	48½	67⅞	28	55⅞	19⅝
⅜	¼	1,000	5/16	5/16	5/16	Magdalena Syndicate	(sh)	850,000	$1	....	.....	1⅞	½	1¼	¼	½	⅛
5	3	100	4	4	4	Margay Oil Corp.		160,000	N.P.	....	7-10-30	48½	32	38½	14	16	3
4⅜	1½	1,000	4⅜	3⅞	4⅜	Mexico-Ohio Oil Co.		500,000	N.P.	....	.....	8	2¾	6⅜	2¼	7½	1⅜
½	¼	100	½	½	½	Mountain & Gulf		$4,000,000	$1	1½cQ	1-15-31	1⅜	.76	1½	¼	⅜	⅜
5⅞	4¾	100	5½	5½	5½	Mountain Producers		$1,682,182	$10	40cQ	1- 2-31	28⅞	19½	22⅞	7	12⅛	3¾
1½	1⅛	100	1⅜	1⅜	1⅜	New Bradford Oil		$1,095,291	$5	10cQ	1-15-31	5⅝	4¼	5	2½	3½	1⅛
3	1⅞	600	2½	2½	2½	New Mexico and Arizona		$1,000,000	$1	....	.....	11⅞	7⅛	9⅜	2¼	7¼	1½
3¼	1⅜	500	3⅛	3⅛	3⅛	North Central Texas	(sh)	400,000	N.P.	....	9- 2-30	14¼	8½	18½	6⅛	11¼	2⅛
½	¼	4,200	½	7/16	½	Pandem	(sh)	489,875	N.P.	....	.....	6	2⅛	3½	½	2½	¾
2	1⅛	200	1½	1½	1½	Pantapec Oil	(sh)	1,506,000	N.P.	....	.....	15⅝	8½	10½	1⅞	4⅜	⅞
		No sales.				Red Bank Oil	(sh)	250,000	N.P.	....	.....	18	4⅞	16	9⅝	10¼	1⅛
1⅜	1	200	1¼	1¼	1¼	Reiter-Foster	(sh)	388,584	N.P.	....	12- 2-29	12⅞	4⅛	8½	1⅛	5⅜	1
3	2	100	2¾	2¾	2¾	Ryan Consolidated	(sh)	500,000	N.P.	....	.....	12	4⅛	11	3	8⅝	2
1⅜	1⅛	400	1⅛	1⅛	1⅛	Salt Creek Consolidated	(sh)	1,286,300	$10	10cQ	1- 2-31	7¼	5½	5⅞	1⅞	2½	½
7¾	6⅛	500	6½	6⅜	6½	Salt Creek Producers	(sh)	1,496,859	$10	50c	2- 2-31	35	23⅛	25⅞	9	15¼	5¼
		No sales.				Savoy Oil		$750,000	$5	....	.....	3½	1	2½	⅜	1	½
5¼	2¾	1,200	3⅞	3⅝	3⅞	Sunray Oil Corp.	(sh)	1,163,185	$5	5%Q‡	1-15-31	..	..	12	5⅝	10	2
1⅞	⅞	1,700	1⅜	1⅛	1⅛	Venezuelan Petroleum	(sh)	755,090	$5	....	2-15-30	9⅛	4¾	6½	1¾	4½	⅝
3½	1½	100	3½	3½	3½	Woodley Petroleum		$500,000	$1	....	3-31-29	8¼	4⅞	9½	2	5	½
⅞	⅝	100	¾	¾	¾	Y Oil & Gas		100,000	N.P.	....	.....	8⅜	2⅛	2⅞	½	2½	⅝

*Including one-half per cent monthly in stock. †Payable monthly and monthly stock dividend of one-half per cent. ‡Paid in lieu of regular cash dividend of 2 per cent. ‖Unit of trading less than 100 shares. x Ex-dividend.

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members of the New York Stock Exchange and Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

1931 High	1931 Low	Week ended March 11 Sales	High	Low	Close	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1928 High	1928 Low	1929 High	1929 Low	1930 High	1930 Low
21	17½	1,700	18⅝	18⅜	18½	Amerada Corp.	(sh)	922,075	N.P.	50cQ	1-30-31	43⅞	27⅛	42⅝	17½	31½	16½
12⅜	7	100	10	10	10	American Republics Corp.	(sh)	209,180	N.P.	....	.....	85	51⅛	64¾	12½	37	5⅛
31	26½	‖20	31	31	31	Associated Oil		$57,260,300	$25	50cQ	12-31-30	53⅜	37½	47¼	34½	51	30
23⅝	18	2,700	19½	19⅛	19⅛	Atlantic Refining		$66,763,775	$25	25cQ	12-15-30	66⅞	50	77⅞	30	51⅜	16⅝
14½	11¼	1,800	12⅜	11¾	12	Barnsdall Corp. A		$56,546,600	$25	50cQ	11- 6-30	54	20	49⅛	20	34	8⅝
12	9⅛	2,700	9⅝	9⅜	9⅜	Continental Oil of Delaware	(sh)	4,741,554	N.P.	....	.....	..	..	47⅞	18	30½	7¾
45⅛	24¼	800	37	38	38⅜	General Asphalt	(sh)	413,333	N.P.	75cQ	12-15-30	94⅞	68	94¾	42¼	71½	22⅝
68½	35¼	2,800	54⅝	52¼	54	Houston Oil		$24,968,600	$100	....	.....	167	79	109	26	116⅞	29¼
14⅛	8¼	1,000	11⅞	11½	11⅝	Houston Oil (new)	(sh)	998,744	$25	....	.....	..	..	..	..	11¾	6⅝
4⅝	3⅝	200	4	3¾	4	Indian Refining		$12,564,070	$10	....	.....	39⅝	9	53	13⅛	17	2
4½	3¾	500	4⅛	4⅛	4⅛	Louisiana Oil Refining	(sh)	1,190,063	N.P.	....	.....	19¾	9¾	18	7	12	3½
3¾	2⅛	200	2½	2½	2½	Maracaibo Oil	(sh)	330,000	N.P.	....	.....	25½	12½	18½	5⅛	10⅜	1⅝
19¾	10⅝	4,100	17	16½	16¾	Mexican Seaboard	(sh)	1,244,383	N.P.	....	10- 1-24	72	45⅝	59⅜	8¼	37	9⅝
16¾	13	6,500	13	12½	12½	Mid-Continent Petroleum	(sh)	1,857,912	N.P.	50cQ	2-16-31	44½	25⅛	39⅞	22⅛	32	11
19½	14	6,000	15⅞	14	14⅝	Ohio Oil	(sh)	6,648,052	N.P.	25cQ	12-15-30	84	58½	79⅞	64¼	32	16
35⅛	34	100	34⅛	34⅛	34⅛	Pan American P. & T.		$50,084,700	$50	....	12-20-27	50⅞	38¼	69	40½	46½	42
36½	32	200	35½	35	35⅛	Pan American P. & T. "B"		$121,110,650	$50	....	12-20-27	59⅞	37¾	69¼	40½	67¼	30
4¼	2⅜	100	2⅞	2⅞	2⅞	Panhandle P. & R.	(sh)	199,370	N.P.	....	.....	21¾	11½	15¼	3	12¾	1⅜
15½	10	‖30	15½	15¼	15¼	Panhandle P. & R. pfd.		$2,564,400	$100	....	.....	108	70	76	47½	80	47½
16⅝	11	4,100	11⅜	11⅛	11⅛	Phillips Petroleum	(sh)	2,593,075	N.P.	50cQ	1- 2-31	53⅞	35¼	47	24¼	44⅝	11⅛
1½	⅝	1,100	1	⅞	1	Pierce Oil Corp.		$29,622,831	$25	....	.....	5¼	½	3⅝	1	2½	½
3⅜	1⅜	600	2⅞	2⅜	2⅞	Pierce Petroleum	(sh)	2,500,000	N.P.	10c	2-16-31	7	3½	5⅞	½	7⅛	1⅜
20⅜	12¾	1,200	15⅜	15	15⅜	Prairie Oil & Gas		$60,848,000	$25	50cQ	12-31-30	68	46	65⅝	40½	54	11¼
26½	17⅞	1,400	22⅛	22	22	Prairie Pipe Line		$101,250,000	$25	75cQ	12-31-30	280	172	65	45	60	16⅝
6	2½	500	4⅜	4⅜	4⅜	Producers & Refiners		$37,438,950	$50	....	9-15-23	29⅞	16	25⅞	4	11⅞	1
16	11⅞	‖60	14¾	14	14	Producers & Refiners pfd.		$2,845,350	$50	....	5- 4-25	49⅝	41	46¾	25½	40	11½
11⅞	8¾	2,700	9¼	9	9	Pure Oil		$75,959,250	$25	....	9- 1-30	31⅝	19	30¾	20	27¼	7⅝
6⅜	2¾	300	4⅜	4⅜	4⅜	Richfield Oil		$52,410,875	N.P.	....	.....	56	23	49⅝	20	9¾	4⅛
10¼	5⅜	800	7⅞	7¾	7¾	Rio Grande Oil	(sh)	1,236,270	N.P.	....	7-25-30	37½	32	42½	15	25¾	5
42⅝	37½	600	38	37½	37½	Royal Dutch, N. Y.	(sh)	611,303	....	$1.3404	1-30-31	64	44⅝	64	43⅛	56½	36⅞
34	30½	400	34	32	32	Shell Transport & Trading Co.		£23,985,000	£1	$0.966	1-23-31	47⅞	41⅜	51½	40⅝	48⅜	26
10¼	7⅜	2,000	7⅞	7½	7⅝	Shell Union Oil	(sh)	13,066,497	N.P.	....	6-30-30	39¼	23¼	31¾	19	25½	5¼
11	7¼	200	8	7¾	8	Simms Petroleum		$8,353,620	$10	....	9-15-30	27¼	18⅛	40⅛	15	37	5⅝
15⅞	10⅛	7,500	13⅜	12¾	13	Sinclair Consolidated	(sh)	5,500,000	N.P.	25cQ	1-15-31	46¾	17⅜	45	21	32	9⅜
102¾	95	100	102⅝	102⅝	102⅝	Sinclair Consolidated pfd.		$16,025,250	$100	$2Q	2-14-31	110	102½	111	103	112¼	86
12⅞	8½	3,500	9	8⅞	8⅞	Skelly Oil		$27,441,250	$25	....	12-15-30	42⅝	25	40½	28	42	10⅛
51¾	45⅛	4,400	45⅞	45⅛	45½	Standard of California	(sh)	12,594,098	N.P.	62½cQ§	12-15-30	80	63	81⅞	51½	75	42¼
19	14⅝	100	15⅝	15⅝	15⅝	Standard of Kansas		$8,000,000	$25	25cQ	12-15-30	37¾	15	33¾	18	49	14⅜
52½	44⅝	21,100	45⅞	44⅝	45⅜	Standard Oil of New Jersey		$634,999,200	$25	25cQ*	12-15-30	59⅜	37⅝	83	49	84⅞	32½
28	21⅞	15,200	23	21⅞	22¼	Standard Oil of New York		$445,223,675	$25	40cQ	12-15-30	33¼	28¾	48⅛	31¾	40⅜	19⅜
45¼	39½	400	42⅞	42	42⅞	Sun Oil	(sh)	1,416,869	N.P.	25cQ	12-15-30	77	31½	68⅜	55	70	39
1¾	¾	1,000	1¼	1¼	1¼	Superior Oil Corp.	(sh)	776,979	N.P.	....	12-20-30	..	..	24	5¼	9⅜	¾
36¼	30⅛	7,200	32	31¼	31⅜	The Texas Corporation		$246,204,900	$25	75cQ	1- 1-30	74⅜	50	71⅞	50	60½	28¼
6½	4½	300	5	5	5	Texas Pacific Coal & Oil Co.		$9,304,890	$10	2½%A‡	12-31-29	26⅝	12⅛	23⅞	9½	14½	4
17½	10½	100	17¼	17¼	17¼	Tide Water Oil	(sh)	2,191,759	N.P.	20cQ	12-31-30	41½	19⅝	40	14	31	13
83	69¼	100	80	80	80	Tide Water pfd.	(sh)	19,947,000	N.P.	$1.25Q	2-16-31	100⅛	86	97½	85⅛	94⅞	71
9	6½	2,600	7⅜	7	7	Tide Water Associated	(sh)	5,560,424	N.P.	30c8A	2-16-31	25	14¾	23½	10	17¾	5⅞
68	55	200	65	65	65	Tide Water Associated pfd.		$73,284,500	....	$1.50Q	1- 2-31	..	..	90⅞	74⅛	89¾	55
26⅝	21½	700	22	21½	22	Union Oil of California		$104,342,375	$25	50cQ	2-10-31	58	42⅜	57	42⅛	50	20⅛
25⅛	22½	600	23⅛	23	23⅛	Union Tank Car	(sh)	1,254,048	$100	40cQ	3- 2-31	128½	110	163¾	121⅞	38½	23
7⅜	4¼	100	5¼	5¼	5¼	Warner-Quinlan	(sh)	632,948	N.P.	....	7- 1-30	44⅞	26	42⅞	15	27	4¾
7½	6¼	100	6¼	6¼	6¼	Wilcox Oil & Gas	(sh)	428,907	N.P.	....	5-10-28	..	..	29¾	12⅞	21	6½

*Plus extra dividend of 25 cents. †Plus extra dividend of 50 cents. ‡Payable in stock. §Plus 2 per cent stock dividend. ‖Unit of trading less than 100 shares. x Ex-dividend.

In comparing highs and lows for the several years in the three tables, it will be necessary to take into consideration cases where there have been splits in the stock.

ANNUAL REPORT OF THE TEXAS CORPORATION

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eries are now being made to Wichita and Kansas City.

"The company has made distinct progress towards balanced diversification of its activities," Frank Phillips, president, says. "Several years ago it became apparent to directors that if the company were properly to protect its investments and receive full benefits from its large reserves of crude oil, natural gasoline and natural gas, it must place itself in a position most cheaply to produce, manufacture, transport and distribute these as finished products to the ultimate consumer. When all of the improvements now nearing completion are in operation they should substantially increase revenue."

H. M. Addinsell, of Harris, Forbes & Co., and Samuel McRoberts, of Chatham-Phenix National Bank & Trust Co., have been elected additional directors of Phillips Petroleum Co.

Houston Oil

The annual meeting of the Houston Oil Co. was held at the offices of the company in Houston, Tex., at which George E. W. Luehrmann of St. Louis, Mo., was elected a director to succeed T. M. Kennerly, recently resigned to accept an appointment of federal judgship. No other changes were made in the official personnel.

Prairie's New Directors

In connection with the election of three new directors, the Prairie Pipe Line Co. issued a statement emphasizing the necessity of seeking new outlets:

"The readjustment taking place in the oil industry by reason of overproduction and the completion of other oil transportation facilities has awakened the stockholders of the Prairie Pipe Line Co. to the necessity of reaching out aggressively for new business, and the representation of these groups of large stockholders on the board of directors is considered a guarantee of their activity and assistance," the statement said.

"The company's program for new outlets and new markets for transportation of crude oil in the Mid-Continent Field appears to be well under way, and it is expected, as a result of the action taken at the stockholders' meeting that the company will be in an improved and satisfactory position as the oil industry becomes more stabilized."

Edward R. Tinker, financier and banker of New York; Henry Lockhart, Jr., of Blair & Co., bankers of New York, and Harry Bronner, director of Petroleum Corp. of America, also of New York, were the new board members elected at the meeting of stockholders.

F. M. Wilhelm, who was retired from the board in order that others might be included, will retain his official connection with the company as secretary. The number on the board was increased from five to seven.

Red Bank Oil

Red Bank Oil Co. reports for year ended December 31, 1930, profit of $160,964 after expenses and interest, but before depreciation, depletion, etc., comparing with profit of $519,178 in 1929. Preferred stock amounts to $521,000 7 per cent preferred (par $100) on which there are accumulated unpaid dividends aggregating $422,610. The no-par common stock is carried in balance sheet at stated value of $4,777,125 but number of shares is not given.

Skelly Oil

Skelly Oil Co. has declared the regular quarterly dividend of $1.50 on the preferred stock, payable May 1 to stock of record April 1.

Arkansas Natural Gas

Arkansas Natural Gas Corp. has declared the regular quarterly dividend of 15 cents on the preferred stock, payable April 1 to stock of record March 20.

Ohio Oil

Ohio Oil Co. and subsidiaries report for the year ended December 31, 1930, net income of $10,930,015 after depreciation, depletion, federal taxes, etc., equivalent after preferred dividends paid, to $1.20 a share on 6,648,052 no-par shares of common stock. This compares with net income in 1929 of $12,347,649 after charges and taxes, equal to $5.14 a share (par $25) on 2,400,000 common shares then outstanding. Preferred stock was issued in March, 1930.

Venezuelan Petroleum

Report of Venezuelan Petroleum Co. (controlled by Sinclair Consolidated Oil Corp.), for year ended December 31, 1930, shows net income of $291,129, after expenses, depreciation, depletion and federal taxes, equivalent to 14 cents a share (par $5) on 2,000,000 shares of stock. This compares with $371,630, or 18 cents a share, in 1929.

Twenty Representative Stocks

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Wednesday, was as follows:

Aug. 6	45.24	Nov. 26	30.86
Aug. 13	43.53	Dec. 3	30.53
Aug. 20	43.79	Dec. 10	28.57
Aug. 27	42.83	Dec. 17	25.42
Sept. 3	42.71	Dec. 24	25.68
Sept. 10	42.84	Dec. 31	26.15
Sept. 17	42.43	Jan. 7	27.56
Sept. 24	40.62	Jan. 14	27.31
Oct. 1	37.78	Jan. 21	27.55
Oct. 8	35.85	Jan. 28	27.26
Oct. 15	35.21	Feb. 4	27.26
Oct. 22	31.88	Feb. 11	28.76
Oct. 29	32.80	Feb. 18	28.53
Nov. 5	31.77	Feb. 25	29.33
Nov. 12	30.18	Mar. 4	27.67
Nov. 19	31.54	Mar. 11	26.53

Standard Oil of California

Reports of Standard Oil Co. of California for year ended December 31, 1930, shows net income of $37,675,300 after depreciation, depletion, Federal taxes, etc., equivalent to $2.93 a share on the average number of shares outstanding the year, and $2.87 a share on 13,102,900 no-par shares of capital stock outstanding at end of year. This compares with $46,633,490, or $3.63 a share on 12,845,980 shares in 1929.

Sun Oil

At the annual meeting of the stockholders of Sun Oil Co. directors were re-elected with the exception of R. E. Lamberton, resigned. At a subsequent meeting of directors, officers were re-elected.

Texas Pacific

Report of Texas Pacific Coal & Oil Co. and subsidiaries for year ended December 31, 1930, shows consolidated net loss of $970,272 after expenses, interest, depreciation, depletion, amortization, etc. This compares with consolidated net income in 1929 of $787,286, equal to 84 cents a share (par $10) on 932,403 shares of stock.

In remarks to stockholders, Edgar J. Marston, president, states:

"Reductions in current assets were entirely due to the company being unable to maintain its cash position due to proration and lack of market for crude oil. During the year a general policy of opening charge accounts through the use of credit courtesy cards was inaugurated by all marketing companies. This additional burden, to this branch of the industry, which at best shows a small percentage of profit, has converted a large part of cash to credit accounts."

CONSERVATION ACT SIGNED BY GOVERNOR

(Continued from Page 23)

said commission to hear and determine the same. Said commission shall set a time and place when such hearing shall be had, and give reasonable notice thereof to all persons or classes interested therein by publication in some newspaper or newspapers having a general circulation in the state, and shall in addition thereto cause notice to be served in writing upon any person, firm or corporation complained against in the manner now provided by law for serving summons in civil actions. In the exercise and enforcement of such jurisdiction said commission is authorized to summon witnesses, make ancillary orders, and use such mesne and final process, including inspection of records, books and analogous proceedings under its control over public service corporations as now provided by law. In connection with the exercise and enforcement of its jurisdiction, the commission shall also have the right and authority to certify as for contempt to the district court of any county having jurisdiction, violations by any person, firm or corporation of any of the provisions of this act or orders of the commission, and if it be found by said district court that such person, firm or corporation has knowingly and willfully violated any order of the commission or the provisions of this act, then such person shall be punished as for contempt in the same manner and to the same extent and with like effect as if such contempt had been of the order, judgment and decree of the district court to which said certification is made.

Sec. 6. An action may be brought against the public service commission in the district court of the county wherein the property being administered is located, or, if the property being administered is located in adjacent counties, then the jurisdiction shall lie in either county. Such action may be brought by any person, firm or corporation shown to be interested therein, except the time for beginning such action shall be limited to thirty (30) days from the date of the order in question. Any order so attacked may be superseded only by the court, and after a hearing, upon such terms and conditions as there may be imposed. All actions brought under this section shall have precedence in any court, and on motion shall be advanced over any civil cause of different nature pending in such court, and such action shall be tried and determined as other civil actions.

Sec. 7. Penalty for violation. That in addition to any penalty that may be imposed by the public service commission, any person, firm or corporation, or any officer, agent or employe thereof, directly or indirectly, violating the provisions of this act shall be guilty of a misdemeanor, and upon conviction thereof in a court of competent jurisdiction shall be punished by a fine in any sum not to exceed five thousand dollars ($5,000), or by imprisonment in the county jail not to exceed thirty (30) days, or by both fine and imprisonment.

Sec. 8. State may secure receiver; extent and manner. That in addition to any penalty imposed under the preceding section, any person, firm or corporation violating the provisions of this act shall be subject to have his or its producing property placed in the hands of a receiver by a court of competent jurisdiction, at the suit of the state through the attorney-general or any county attorney, but such receivership shall only extend to the operating of producing wells and the marketing of the production thereof, under the provisions of this act.

Sec. 9. The Public Service Commission is hereby authorized and directed to tax and assess against the parties involved in any hearing or application the costs incurred therein and also, all costs to the State of Kansas incurred in making necessary investigations and in enforcing its orders under this act and divide such costs among the parties in such proportion as is just and equitable.

Sec. 10. If any section, subsection, paragraph or provision of this act shall be held to be invalid by any court for any reason, it shall be presumed that this act would have been passed by the legislature without such invalid section, subsection, paragraph or provision, and such finding or conclusion shall not in any way affect the remainder of this act.

Sec. 11. This act shall take effect and be in full force from and after its publication in the statute book.

DEEPWATER TO BUILD 3,000-BARREL STILL

HOUSTON, Tex., Mar. 16.—Deepwater Oil Refineries, Inc., Houston, is starting a new construction project, which will include the installation of a low pressure pipe still and bubble tower. This equipment is being put in under direction of R. Q. Traweek, superintendent of the plant, and is of the company's own design. The unit will have a capacity of 3,000 bbls. daily but as the present equipment will be used only as auxiliary equipment, no material increase in the total crude capacity of the plant will be made.

STANDARD OIL CO. OF CALIFORNIA

Current Prices for Crude Oil at the Well *Effective* 7 a.m. March 10, 1931

Gravity—	Santa Fe Springs	Seal Beach	Long Beach	Torrance	Rosecrans, Athens, Dominguez	Montebello	Huntington Beach	Coyote Hills	Richfield	Brea-Olinda	Inglewood	Elwood	Playa del Rey	Whittier, La Habra	Midway-Sunset, Elk Hills, Buena Vista Hills	Lost Hills	Coalinga	Wheeler Ridge
14-14.9°	..	.65	.65	.65	..	.65	.65	.65	.65	.65	.65	..	..	.65	.55	.55	.55	.55
15-15.9	..	.65	.65	.65	..	.65	.65	.65	.65	.65	.65	..	..	.65	.55	.55	.55	.55
16-16.9	..	.65	.65	.65	..	.65	.65	.65	.65	.65	.65	..	..	.65	.55	.55	.55	.55
17-17.9	..	.65	.65	.65	..	.65	.65	.65	.65	.65	.65	..	..	.65	.55	.55	.55	.55
18-18.9	..	.65	.65	.65	..	.65	.65	.65	.65	.68	.66	..	..	.65	.55	.55	.55	.55
19-19.9	..	.65	.65	.65	..	.65	.66	.65	.65	.69	.68	..	..	.65	.55	.57	.55	.55
20-20.9	..	.65	.67	.66	..	.65	.68	.65	.67	.71	.70	..	.65	.65	.56	.59	.55	.55
21-21.9	.65	.66	.70	.68	..	.65	.70	.66	.69	.72	.72	..	.66	.65	.57	.61	.55	.55
22-22.9	.65	.68	.71	.70	..	.65	.71	.67	.71	.74	.74	..	.67	.66	.58	.63	.57	.56
23-23.9	.65	.70	.72	.71	..	.65	.73	.69	.74	.75	.75	..	.68	..	.61	.64	.59	.56
24-24.9	.65	.72	.73	.72	.65	.66	.76	.71	.76	.77	.77	..	.69	..	.62	.66	.61	.56
25-25.9	.66	.75	.75	.74	.65	.68	.77	.73	.78	.78	.81	..	.70	..	.66	.67	.62	.58
26-26.9	.68	.77	.76	.76	.65	.70	.78	.74	.80	.80	.85	..	..	..	.69	.69	.64	.61
27-27.9	.70	.80	.77	.77	.66	.72	.80	.76	.82	.82	.89	..	..	..	.71	.70	.66	.63
28-28.9	.72	..	.79	.78	.69	.74	.81	.78	.84	.85	.93	..	..	..	.74	.72	.69	..
29-29.9	.75	..	.81	..	.72	.76	.83	.80	.86	.88	..	..	..	..	.76	.73	.71	..
30-30.9	.78	..	.83	..	.75	.78	.85	.82	.88	.88	..	..	..	..	.78	.74	.73	..
31-31.9	.80	..	.85	..	.78	..	.87	..	..	.88	..	..	..	..	.80	.76	.75	..
32-32.9	.83	..	.87	..	.81	..	.89	..	..	..	..	..	..	..	.83	.77	.77	..
33-33.9	.85	..	..	..	.84	..	..	..	..	..	..	..	..	..	.86	..	.79	..
34-34.9	.87	..	..	..	.88	..	..	..	..	..	..	.85	..	..	..	..	.81	..
35-35.9	.90	..	..	..	.91	..	..	..	..	..	..	.88	..	..	..	..	.83	..
36-36.9	.92	..	..	..	.94	..	..	..	..	..	..	.91	..	..	..	..	..	..
37-37.9	.95	..	..	..	.97	..	..	..	..	..	..	.94	..	..	..	..	..	..
38-38.9	.97	..	..	..	1.00	..	..	..	..	..	..	.97	..	..	..	..	..	..
39-39.9	1.00	..	..	..	1.03	..	..	..	..	..	..	1.00	..	..	..	..	..	..
40-40.9	1.00	..	..	..	1.06	..	..	..	..	..	..	1.03	..	..	..	..	..	..
41-41.9	1.00	..	..	..	1.10	..	..	..	..	..	..	1.07	..	..	..	..	..	..
42 and above	1.00	..	..	..	1.13	..	..	..	..	..	..	1.10	..	..	..	..	..	..

Note—Elwood prices are f.o.b. ships. Playa del Rey crude oil is subject to a gathering charge of 5 cents per barrel.

Repressuring in Red River Oil Field

Description of Methods of Operation and Analysis of Results From Unit Program in the Western Area

By Tom L. Coleman
District Engineer, United States Geological Survey*

The Red River oil field is located mainly in the bed of the Red River in the surveyed and unsurveyed portions of Sections 3, 4, 5, 7, and 8, Township 5s, Range 14w, Tillman County, Oklahoma, but several producing leases extend southward onto the south bank of the Red River in Wichita County, Texas. The field is approximately 4 miles south of Grandfield, Okla., and 7 miles northwest of Burkburnett, Tex.

A few hundred feet south of Red River lies a low range of hills about 1,100 feet above sea level. These hills drop abruptly on the north to the flat sandy flood plain along the south bank of the river, and upon this plain are located the wells in the southern part of the Red River Field. The average altitude of this flood plain above sea level is 1,015 feet, and that is also the altitude of the residual sand island in the river between the north and south channels, upon which are wells in the northern and northwestern portion of the Red River Field. The bed of the Red River at this point is a flat sandy waste about a mile wide, 1,003 to 1,008 feet above sea level, consisting of a south channel, a north or main channel, and numerous minor cross channels. Most of the wells in the field are in the south channel and some of the cross channels and for this reason must be built on piling that will raise the derrick floors above the level of the flood waters that sweep through these channels during spring and fall floods. Since the discovery of the field neither the south bank nor the sand island has been inundated, but several wells in the channels have been washed away.

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Geology

The rocks exposed in the vicinity of the Red River Field belong to the Wichita formation of Permian age. The depth of the contact of the Permian with the Pennsylvanian has not been established, to the writer's knowledge, but seems to be near 700 feet below the surface, where the color of the drill cuttings changes from the red that characterizes the Wichita formation to the blue and gray of the predominating shales and limestones of the upper Pennsylvania Cisco group, underlying the Wichita. The producing beds of the Red River Field, like those of the other fields of the Burkburnett district, are found near the bottom of the Cisco group. Well No. 4 on the Reno Oil Co.'s lease Guthrie 014,186 passed out of the producing beds at 1,611 feet and from 1,633 to 1,638 feet, its total depth, passed through red shale, which no doubt is correlative with the red shale that in several wells in the North Texas area marks the contact between the Cisco group and the underlying Canyon group of the Pennsylvania.

Structure

The structure map of the field, prepared by the United States Geological Survey, with contours on the top of the producing sand, shows the field to be located on two structural "highs" with a producing area of about 500 acres on each. The eastern producing area takes the form of an unclosed narrow nose whose highest point is just south of the Red River in Wichita County, Texas, near the limits of production in the northwestern field of the Burkburnett district. This nose plunges northwestward across the southwest quarter of Section 3 and on across Section 4-5s-14w, and may die out, no further data being at hand. A minor closure is found on this plunging nose near the center of Section 4-5s-14w.

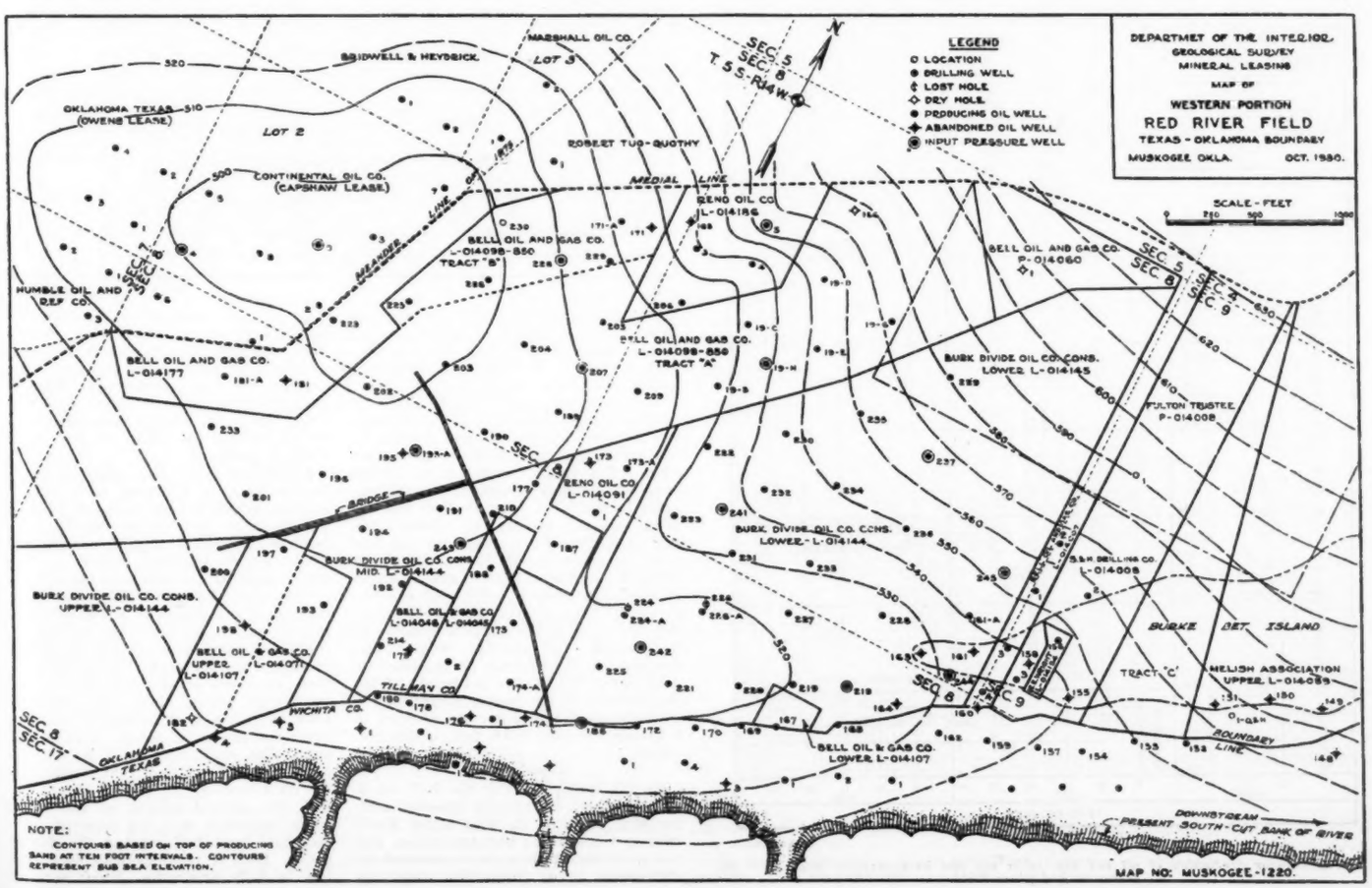
A pronounced syncline that crosses the south quarter corner of Section 4 and extends in a northwesterly direction through the northeast quarter of Section 5-5s-14w, separates the two producing areas. In the western area the strata rise gently from the syncline toward the southwest, and attain their greater altitude in the north central part of the west half of Section 8-5s-14w, in a flat dome whose west and north dips are very abrupt.

The producing beds found in these two areas range from 50 to 75 feet in thickness and occur in the western area at depths between 1,500 and 1,625 feet, and in the eastern area between 1,600 and 1,725 feet. They consist of sand and sandy shale divided by shale and lime breaks that are fairly regular and can be readily correlated over most of the field.

The productivity of the wells seems to be due to local sand conditions rather than to favorable structure. The wells on the crest of the structural "highs" are all small producers. The sand is thicker on the slopes of the highs than it is on the crests, and the wells have larger yields where the sand is thicker. The limits of the field are determined by the pinching out of the producing sands, which grade off into sandy shale and shale, and not by the dip of the formation to a point on the sides of the highs where a water level is encountered—the usual limit to the producing area of a field. There is no water level, as such, in the Red River Field. Bottom water was encountered at about 1,535 feet in the early days of the field, but today no water is found in the producing beds shallower than 1,555 feet, and many wells are entirely free from water. Well No. 4 of the Reno Oil Co.'s lease Guthrie 014,186, previously mentioned, with a total depth of 1,638 feet, went 27 feet below the producing beds and found no water below the 6⅝-inch casing set at 1,552 feet.

Twelve Wells Drilled

Twelve wells have been drilled during 1930 in this field, in all of which the top of the producing beds has been located with a core barrel and their full thickness has been cored. These cores show that in wells located toward the center of the field there is about 70 feet of the productive zone, nearly all of which is sand, the shale and lime breaks being thin and few. In the wells located toward the edges of the field the productive zone decreases to about 40 feet in thickness and contains a smaller proportion of sand and more shale and lime. This transition from thick sand to sandy shale and shale is shown very strikingly in the north end of the field. Well No. 227 of the Bell Oil & Gas Co., on lease Guthrie 014,098-850, found the top of the sand


LEGEND
LOCATION
DRILLING WELL
LOST HOLE
DRY HOLE
PRODUCING OIL WELL
ABANDONED OIL WELL
INPUT PRESSURE WELL
DEPARTMET OF THE INTERIOR
GEOLOGICAL SURVEY
MINERAL LEASING
MAP OF
WESTERN PORTION
RED RIVER FIELD
TEXAS - OKLAHOMA BOUNDARY
MUSKOGEE, OKLA. OCT. 1930.
SCALE - FEET
T. 5 S. - R. 14 W.
SEC. 5
SEC. 8
MEDIAL LINE
MEANDER LINE
RENO OIL CO. L-014186
BELL OIL AND GAS CO. L-014098-850 TRACT "B"
BELL OIL AND GAS CO. L-014098-850 TRACT "A"
BELL OIL AND GAS CO. L-014177
BELL OIL AND GAS CO. P-014060
HUMBLE OIL AND REF. CO.
RENO OIL CO. L-014091
BURK DIVIDE OIL CO. CONS. LOWER L-014145
BURK DIVIDE OIL CO. CONS. LOWER L-014144
BURK DIVIDE OIL CO. CONS. MID. L-014144
BURK DIVIDE OIL CO. CONS. UPPER L-014144
BELL OIL & GAS CO. L-014046 L-014045
BELL OIL & GAS CO. UPPER L-014107
BELL OIL & GAS CO. LOWER L-014107
FULTON TRUSTEE P-014008
S & H DRILLING CO. L-014008
BURKE GET ISLAND
TRACT "C"
HELISH ASSOCIATION UPPER L-014089
MARSHALL OIL CO.
BIDWELL & HEYDRICK
ROBERT TUG-QUOTHY
CONTINENTAL OIL CO. (CAPSHAW LEASE)
OKLAHOMA TEXAS (OWENS LEASE)
TILLMAN CO.
WICHITA CO.
OKLAHOMA TEXAS BOUNDARY LINE
BRIDGE
PRESENT SOUTH-CUT BANK OF RIVER
DOWNSTREAM
NOTE:
CONTOURS BASED ON TOP OF PRODUCING SAND AT TEN FOOT INTERVALS. CONTOURS REPRESENT SUB SEA ELEVATION.
MAP NO: MUSKOGEE-1220.

low, at 1,560 feet, but had 40 feet of almost solid sand and is one of the best producing wells in the field with an average of 75 bbls. of oil daily. About 500 feet northwest of No. 227 is Robert Tuo-Quothy No. 1, which is slightly higher structurally, and found a thin sand and some sandy shale at 1,545 to 1,560 feet, but, although drilled to 1,670 feet, found no more productive sand and makes only 5 bbls. of oil daily. Authorities on this field have always regarded the producing sands as lenticular, and the formations as revealed by the core barrel, coupled with the eccentric water conditions, seem to verify this belief. The lenses are large, as is shown by the shale and lime breaks that are found at even intervals throughout a large part of the field. It is only toward the edges of the field that the correlations become confusing with the appearance of more shales and limestones than are found toward the center of the producing area.

History

Oil was first discovered in the Red River Field in October, 1919, and since that time over 4,000,000 bbls. of oil, with gravity ranging from 39° to 41° Be., has been produced. For several years the title to the land in the field was disputed between the States of Texas and Oklahoma, but in 1925 the United States Supreme Court rendered a decision that the northern boundary of Texas was the south cut bank of the Red River, and this decision placed the bulk of the field in Oklahoma. The land from the medial line of the Red River to the south cut bank is public domain. All oil and gas operations on the public domain have been supervised by the United States Geological Survey since December 1, 1925, a representative of this organization being stationed in the field.

The Bell Oil & Gas Co. of Tulsa, Okla., produces about 55 per cent of the oil from the field and buys all but a small part of the remainder to run to its refinery at Grandfield, Okla., 4 miles north of the Red River Field, through its own pipe line.

Vacuum

At the time the repressuring plan was suggested this field was divided into two zones for pulling vacuum on the producing sands. In one zone, containing the wells on the Texas bank of the Red River and the wells adjacent to the Texas bank in the south channel, 26 inches of vacuum was being pulled on the producing sands. In the other zone, consisting of all wells north of the first zone, 20 inches of vacuum was being pulled on the producing sands. Previous experience had taught the operators that any reduction in the vacuum was followed by an immediate loss in daily production, which was not recovered for some time. When the cutting of the vacuum was asked as a means to help the repressuring program, the operators requested that the cut be graduated, the time and amount of each cut to be governed by daily production figures. Such a plan was agreed upon, and as a first step toward bringing about an equitable division of the vacuum cuts, the two zones were consolidated August 1, 1929, into one, with the result that a vacuum of 23 inches was being pulled on the producing sands of the field. Thereafter cuts were made in the vacuum whenever daily production figures seemed to justify them, until by January 1, 1930, only 1 inch of vacuum remained, and this was discontinued April 1, 1930. Then back pressure was applied on the gas lead lines of the field, the amount of pressure being likewise governed by the daily production figures. This pressure is being steadily increased at intervals. The time intervals and the size of the cuts in vacuum and the applications of the back pressure are shown graphically on the accompanying chart.

The fact that daily production figures were slightly higher when the vacuum was finally removed than when the full vacuum was being pulled shows that the help given to daily oil production by the injected gas more than balanced the help given by the vacuum formerly pulled on the producing sands.

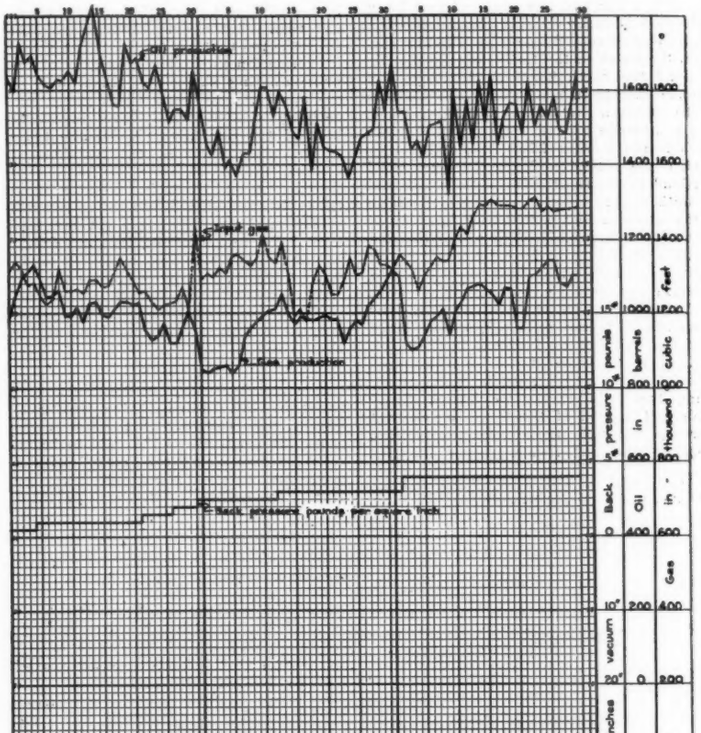
Effect of Vacuum

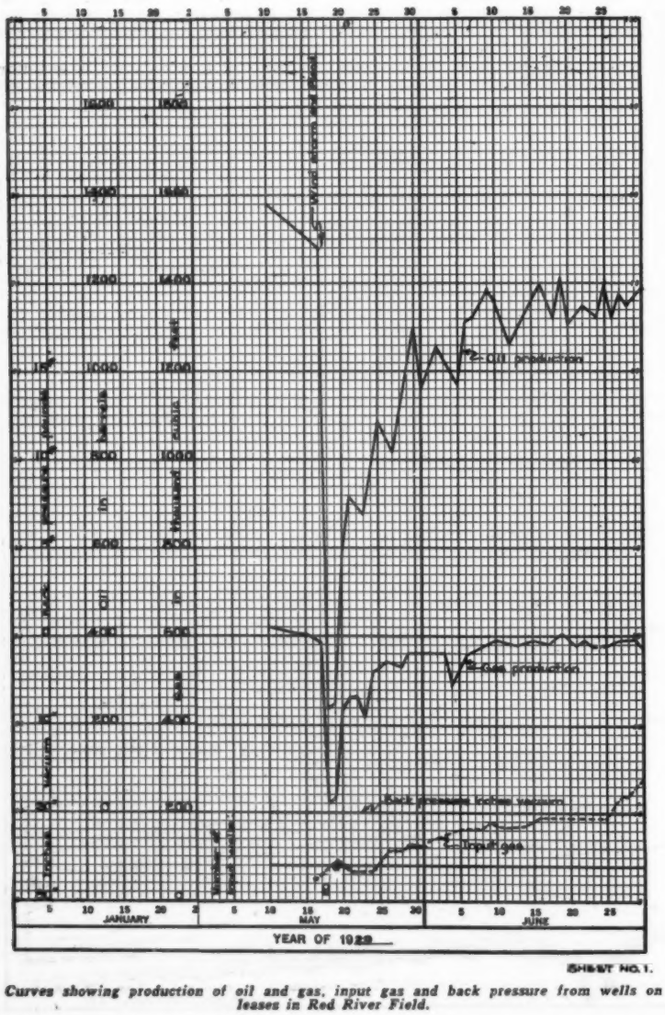
A noticeable result accompanying the cutting of the vacuum was the immediate increase in the gravity of the oil. Before the removal of the vacuum started, the average gravity of the oil produced in this field was 39° Be. With the cutting of the vacuum the gravity gradually increased until in January, 1930, it had reached an average of 42° Be., with much of it 43°. With the building up of a pressure on the producing sands the gravity has dropped to an average of 41°, owing in all probability to the taking into solution by the oil of the dry gas injected in this field. A great deal of the gas is then produced as gas and takes with it much of the lighter fractions that would add gravity to the oil.

Simultaneously with the cut in vacuum and the rise in gravity of the oil came a distinct drop in the gasoline content of the casinghead gas produced from this field. The vacuum takes from the oil some of the lighter vapors that would remain in the oil if vacuum were not applied, and this removal of vacuum adds gravity to the oil and makes the gas contain less of the vapors that produce casinghead gasoline. Before gas injection started there was 8 gallons of gasoline for each 1,000 feet of gas produced in this field. With the complete removal of the vacuum the gasoline content had dropped to 3½ gallons of gasoline for each 1,000 feet of gas produced. With the increase of the back pressure on the field the gasoline content has dropped to 3 gallons for each 1,000 feet of gas produced.

Repressuring

In the spring of 1929 the Bell Oil & Gas Co. had engineering reports made for each lease in the Red River Field, with curves showing past production, and the projection of these curves showed the anticipated future production under the conditions then existing. This company then approached the other operators in the field with a proposal whereby the Bell Oil & Gas Co. was to purchase gas and inject it into the producing sands under the supervision of the United States Geological Survey in an effort to stimulate production. For this service the Bell Oil & Gas Co. was to receive for a period of 15 years a fixed percentage of any increased production of oil and gas above the figures established by the production curves for each lease. These curves were accepted as basic by nearly all the operators, and differences were adjusted, so that every operator in the field but one signed contracts with the Bell Oil & Gas Co. for repressuring. Fortunately for the repressuring plans, the property of the one objecting operator is located on the extreme south edge of the field, where he is pumping 12 bbls. a day from two wells under a 12-inch vacuum.





Curves showing production of oil and gas, input gas and back pressure from wells on leases in Red River Field.

Preliminary plans called for repressuring in both the eastern and the western areas, but after an eight-month trial with discouraging results the project on the eastern area was discontinued. All comments in this paper therefore deal with work done in the western area from which 90 per cent of the oil in the Red River Field is produced.

Experience gained from other repressuring projects in different parts of the country seemed to point to the desirability of raising as soon as possible the fluid level in the field to a point covering the producing sands, thus making a fluid barrier against bypassing gas through dry or depleted sands, and also realizing to the fullest any effects of gas drive on oil production. Two plans for raising the fluid level were presented for the consideration of the operators: First, the complete shutdown of the field for a time, until tests should show that the fluid level had risen to a height sufficient to cover the producing sands, or to such a point that production could be resumed on a prorated schedule that would hold the fluid level at the desired point; second, the gradual raising of the tubing while production was still going on, until the fluid level had reached the desired point. Both of these methods entailed a loss in daily production, which some of

the operators were in favor of taking at once in the belief that by so doing the ultimate production of the field would be greater. However, as complete accord could not be reached among all operators, these plans were abandoned for the time, and another desirable step in the direction of building up a pressure in the producing sands was called to the attention of the operators. This was the removal of the vacuum that was being pulled on the producing sands of the field.

Gas Injection

With the signing of the repressuring contracts gas injection lines were laid and connections made to those wells selected as pressure wells by representatives of the Bell Oil & Gas Co. and the United States Geological Survey from a list of wells offered as available for this purpose by the operators. The wells selected were located at fairly even intervals around the edge of the field. There were two reasons governing the position of these selections. First, the operators would offer as a pressure well one that was making little oil, so that the resulting loss of daily production would be small, and this was invariably an edge well. Second, it was considered the better plan to force the migration of oil from the edges of the field toward the more productive wells in the center of the field than to reverse the process.

The Bell Oil & Gas Co. purchases gas from the Shasta Gas Co., which delivered it to this field at a pressure of 50 pounds to the square inch until May 25, 1930, when the pressure was increased to 80 pounds to the square inch. Each pressure well was equipped with a pressure regulator, a needle valve for volume regulation, and a meter for measuring the volume of input gas. For the wells in which a small volume of gas was used meters of the positive displacement type were used. For the wells in which the volume of gas injected exceeded 40,000 feet daily meters of the orifice type were used. As nearly as possible, a semblance of equality between the amounts of gas injected into the pressure wells was observed. This was done with a two-fold purpose—to repressure the field as equally as possible, with no large differential between areas, and to avoid giving more stimulus to one operator than to another in those areas that were being helped by the gas drive on the oil production.

Line Pressures

So far the line pressures have been found sufficient to inject all the gas necessary for operations in this field. On May 17, 1929, gas injection started with a total of 60,000 feet daily entering through 10 wells. Because of the heavy vacuum being pulled on the producing sands, little pressure was necessary to force gas into any of the wells; in fact, some of the wells took the gas with a back vacuum of as much as 9 inches. This back vacuum gradually disappeared as the amount of injected gas increased, until pressure became necessary for injection. Because cognizance had not been taken of the fact that corresponding depth of wells from the surface did not mean an equal stratigraphic depth, owing to the dip in the formations from the structural high, all wells in the field were not producing from the same sands, and consequently the gas was not being injected into the same sands. A later analysis of cores from one well showed that the producing sands in this well vary in porosity between the limits of 24 and 31 per cent. It is obvious that a great deal of the difference in the injection pressures is attributable to the porosity factor in the different sands and the local variations in porosity in the same sand.

Effects of Gas Injection

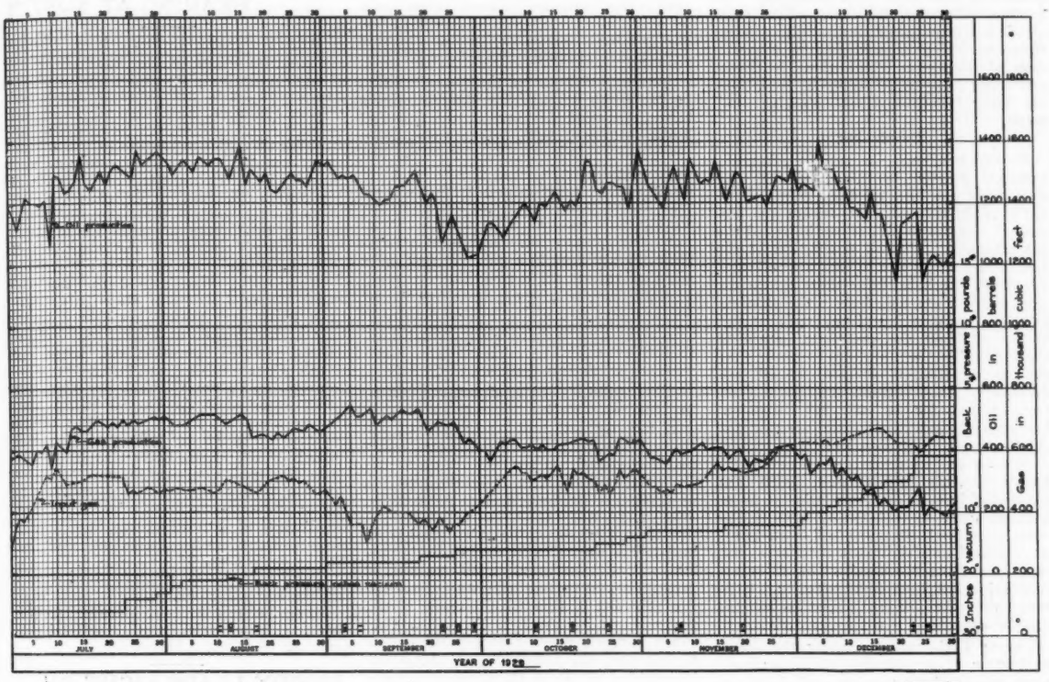
After six weeks of gas injection, during which the amount of gas injected daily had been increased from 60,000 to 200,000 feet, it was noticeable that in several areas oil production had been stimulated in varying degrees, and there seemed no reason for this increase other than the effects of the gas injection. Spurred on by these scattered examples of the possibilities of success from the gas injection program the Bell Oil & Gas Co. increased the amount of input gas to 500,000 feet daily within a few days. The results were not satisfying. Gas production increased rapidly, but there was no corresponding increase in oil production. The results indicated that the input gas was traveling through the depleted sands of the upper producing zone without reaching any of the saturated sands toward the bottom of the producing zone and was returning to the surface without having exerted any effect on the movement of oil. The high vacuum that was being pulled on the producing sands probably hastened the quick and unprofitable return of the injected gas. This experience showed the operators conclusively the necessity for the early removal of the vacuum, and from this time on the steady removal of vacuum was carried out to its final elimination. To check the excessive gas production with its correspondingly high oil-gas ratio, orifice plates were placed in the gas lead lines of those wells that had shown increases that were not considered excessive; in the wells that had shown excessive gas production, some of which no doubt was due to a channeled condition in the sand, stopcocks were installed in the gas lead lines, and these cocks were closed to the point that permitted only enough gas to pass through to allow a normal oil-gas ratio. These restricted measures, coupled with a reduction in the amount of injected gas, checked the unsatisfactory operation of the plan.

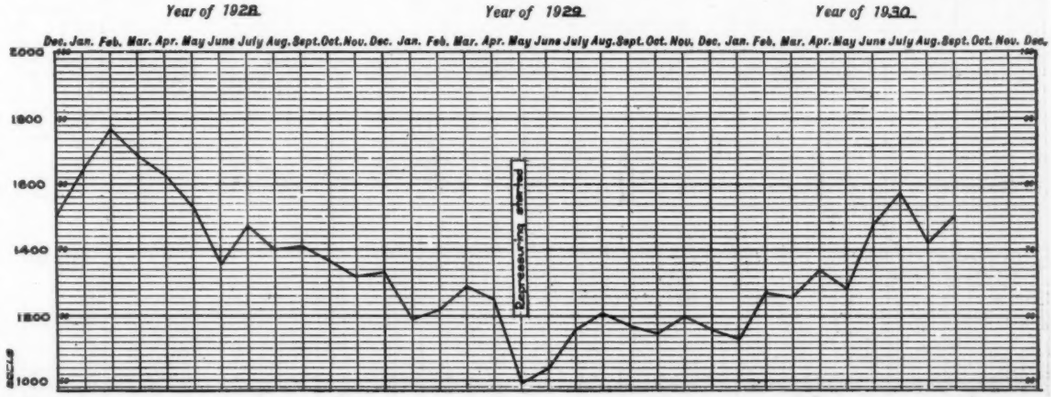
The tubing was raised in several wells that were showing excessive gas production, in an effort to raise the fluid level to a point that would shut off the bypassing gas, but these efforts were fruitless because the tubing in the offset wells was still toward the bottom, and these wells kept the fluid pumped down so that it was not possible to raise the level at the desired point.

In the well that showed the most extreme example of channeling an attempt was made to set a packer on tubing at a point below the depleted upper sand, so that the input gas would enter the sand where it was thoroughly saturated and be shut off by the packer from the upper barren zone. Because of the shattered condition of the wells of the shot hole, the packer could not be made to hold, and this effort failed in its purpose.

New Wells Drilled

With the decision that the point of entry of the injected gas could not be controlled in such a manner as to insure effective results in the wells being used as pressure wells, the Bell Oil & Gas Co. decided to drill a well to be used as a pressure well, completing it in such a manner that the most effective use of the input gas could be realized. With the sanction and advice of the United States Geological Survey it was planned to drill this well to the top of the producing zone, which was to be located by starting coring at a point known to be well above the producing zone and coring until oil saturation was found; 6⅝-inch casing was then to be cemented on top of the producing zone, and the producing zone was to be cored until it had been passed through. A location was selected on Sublease 20 of lease Guthrie 014,098-850, where the producing zone was known to have a maximum thickness, and well No. 228 was spudded August 25, 1929, and was completed September 21, 1929. First oil was found at 1,528-31 feet, but this was cemented off behind the 6⅝-inch casing as a possible "thief sand." Below a 5-foot shale break a good oil sand was found at 1,536-63 feet, followed by a 2-foot shale and 10 feet more of good oil sand. A lime shell at 1,575-76 feet was followed by 21 feet of soft coarse sand with a heavy oil saturation. Under this sand was a lime shell in which the hole was bottomed at 1,598 feet, because conditions were then considered ideal for the test that was to be attempted. Two-inch tubing on a packer was set in the lime shell from 1,575-76 feet, with the idea of injecting the gas into the thoroughly saturated sand between the two lime shells, from which there was probably no vertical escape for the gas except through the producing wells surrounding the pressure well. It was felt that if there were any crack or crevice in the top lime shell any gas escaping through it would at least have the opportunity of exerting its force on the 27-foot oil sand above the lime before returning to the surface. Pressure tests tend to show that there has never been any leak around the packer, and the results indicate that the gas probably exerts all its force horizontally on the 21-foot bottom sand. Within two weeks after gas injection had been started in this well the oil production on this lease had increased from 60 to 100 bbls. daily, and




Year of 1928
Year of 1929
Year of 1930
Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.
2000
1800
1600
1400
1200
1000
Repressuring

Curve showing average total daily oil production by months from leases in Red River Field, Oklahoma; accompanying report of repressuring operations.

this production has been maintained for over a year.

Program of Drilling Wells

With the conclusive evidence of the results obtained around well No. 228 as proof of what could be done in the way of injecting gas at the proper point in the pressure wells, the Bell Oil & Gas Co. started on a program of drilling wells for pressure, in which the Burk Divide Oil Co., Consolidated, joined. Each of these companies now has five wells, located most advantageously, that have been drilled for pressure wells. As no better plan than that used on the Bell Oil & Gas Co.'s No. 228 has been suggested, the same procedure in drilling and completing the wells has been followed. After coring the producing zone of each well a shale or lime break above a saturated sand as near the bottom as possible was selected as the place to set the packer on the tubing, so that the injected gas would enter the producing zone near the bottom, insuring the maximum contact with the oil zone before returning to the surface.

An excellent example of the effectiveness of controlling the point of gas injection is presented by well No. 218 of the Burk Divide Oil Co., Consolidated, on lease Guthrie 014,144. This well was among the first 10 wells through which gas was injected and had been in constant use, with the amount of gas being injected daily running to 75,000 feet for several months. No noticeable results in the production of either oil or gas had ever been traceable to the gas injected into this well. The bottom in No. 218 was at 1,558 feet, and a correlation with some of the deeper wells showed the probability that some 30 feet of producing sand still remained undrilled, so it was decided to deepen the well. An undeterminable amount of junk was encountered that could not be recovered, but the well was drilled to a depth of 1,590 feet in spite of this hindrance, and the drill cuttings showed good oil sand. An attempt was made to cement off the producing zone from the old bottom at 1,558 feet to the seat of the 6-inch casing, but this attempt was not wholly successful. Gas was turned into the well, however, and it took 100,000 feet daily at a pressure of 17 pounds to the square inch, whereas previous to the deepening it had required a pressure of 25 pounds to the square inch to inject 75,000 feet of gas daily. These figures showed the probability that the gas injection began production in wells surrounding No. 218 which showed increases in daily production, that, in several of them amounted to over 100 per cent. This well is the only old producing well in the field which after being used as a pressure well has shown any encouraging results in aiding production.

Deepening Old Wells

With the general distribution over the field of the newly drilled wells, in which the top and bottom of the producing zone have been accurately located with the core barrel, it is an easy matter to correlate the older wells with these wells and see where it will be profitable to deepen many of the older wells. About 75 per cent of the wells in this field that can be deepened successfully to the known producing beds have been deepened. The mechanical condition of some of the wells precludes any possibility of their being deepened. Several wells, as to the wisdom of deepening which there is doubt, are being held until economic conditions are more favorable before starting such work.

Conclusion

It was not until six months after gas injection started in this field that the amount of gas injected daily equalled the daily production of gas; during the second six months the input gas balanced the gas produced. The oil production at the end of one year's gas injection was larger by about 100 bbls. daily than before the gas injection started, despite the elimination of over 20 inches of vacuum that had been pulled on the producing sands of the field. This would seem to prove that the loss of stimulus given to the oil production by this vacuum was more than compensated for by the gas injection. During this first year of gas injection the effects on oil production have been almost altogether in the nature of a gas drive. In June, July and August, 1930, the amount of injected gas was twice as great daily as prior to that period, and at the same time back pressure had been gradually raised until it was 4 pounds on the lead lines from the field. The daily oil production has been increasing, and it is hoped that the present project is assuming the aspects of a repressured field.

Figure 1 shows graphically the daily production of oil and gas, the amount of input gas, the back pressure and the number of input wells. Figure 2 shows the average total daily production of oil by months on government leases for the period from January, 1928, to August, 1930, and depicts the declining production for approximately 1½ years prior to repressuring.

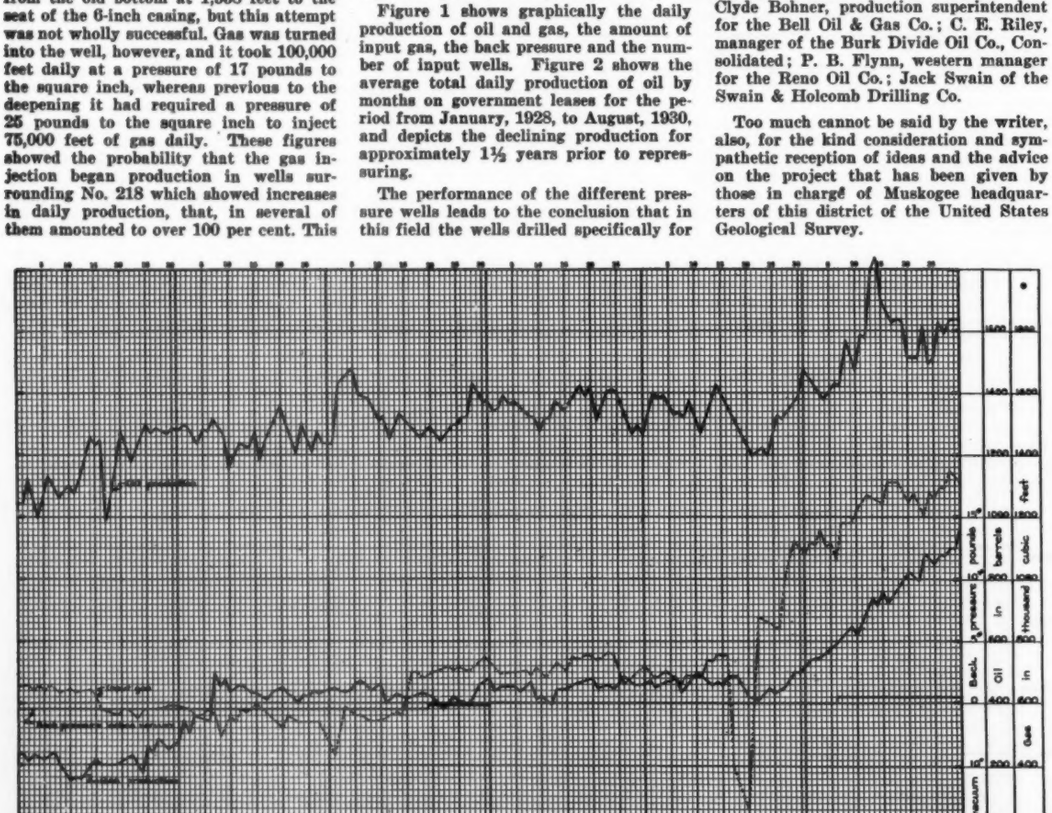
The performance of the different pressure wells leads to the conclusion that in this field the wells drilled specifically for pressure wells are the only type that are efficient. The next step in the program will be an attempt to persuade the operators to raise the tubing some distance off the bottom in an effort to raise the fluid level over the field and thereby realize more from the effects of the power of the injected gas. Conditions seem favorable for the success of this plan, and probably it will soon be ratified by the operators. By raising the tubing and thus allowing the fluid level to rise over as much of the sand as possible, and then holding it at that point, it is hoped that the gas pressure will be built up to a point where, even in those sands that may not be covered with fluid, the "Jamin effect" will be overcome, the oil will be loosened, and the resulting accumulation will further raise the fluid level.

In No. 1 Wicher of the Reno Oil Co., on the south bank of the Red River, the top of the sand showing oil was found at 1,515 feet, and, with the exception of a few small shale breaks, the formation was sand showing oil from 1,515-40 feet, but no oil would stand in the hole. The oil was in the sand, but its adhesion to the sand grains was so great that it would not move into the hole and form a fluid. Below 1,540 feet the sand showed more oil, and enough oil accumulated to make a small producing well. It is hoped that the gas pressure will overcome such conditions as this by forcing gas between the sand grains.

Acknowledgments

The writer wishes to thank the following persons for their courtesy in furnishing information and their hearty cooperation with him and with each other in the work of conducting this repressuring program as a unit on leases involving so diversified an ownership: Albert Finston of the Bell Oil & Gas Co., who conceived the repressuring plan and conducted the negotiations that made it possible; J. C. Schroder, superintendent of pipe lines and repressuring operations for the Bell Oil & Gas Co.; Eugene Potts, gas engineer for the Bell Oil & Gas Co.; Clyde Bohner, production superintendent for the Bell Oil & Gas Co.; C. E. Riley, manager of the Burk Divide Oil Co., Consolidated; P. B. Flynn, western manager for the Reno Oil Co.; Jack Swain of the Swain & Holcomb Drilling Co.

Too much cannot be said by the writer, also, for the kind consideration and sympathetic reception of ideas and the advice on the project that has been given by those in charge of Muskogee headquarters of this district of the United States Geological Survey.



CRUX OF SITUATION LIES IN EAST TEXAS

(Continued from Page 21)

so they will keep on the general line of proration while the governors in the oil states are doing all they can to harness the flow of domestic production."

Wilbur said the understanding with the companies would remain in force generally as long as proration was in effect in the oil states and that no set time had been fixed.

EAST TEXAS PRORATION HEARING AT AUSTIN

FORT WORTH, Tex., Mar. 16.—It has been ordered by the State Railroad Commission that "notice be given all producers of crude petroleum in Rusk and Gregg Counties, East Central Texas, all pipe line companies and purchasers furnishing an outlet or market in these counties, and to all parties interested, that the Railroad Commission of Texas, will on March 24, 1931, at 10 o'clock a. m., take up all matters pertaining to proration of production of crude oil in Rusk and Gregg Counties." The hearing will be held at the State Capitol at Austin.

This notice was mailed the day the East Texas Lease and Royalty Owners and Producers Association held a meeting at Henderson, at which that organization opposed prorating the Gregg and Rusk County fields until imports were reduced to 16,000,000 bbls. per year, the limit proposed in the Capper bill.

The meeting opposed the views of the central proration committee of Texas of which R. R. Penn, Dallas, is chairman. The Railroad Commission will be asked to not permit the central committee to make recommendations relative to any character of proration in East Texas fields, if and when proration ever becomes necessary.

Judge Charles L. Brachfield, chairman of the executive committee of the association, named a subcommittee to recruit a large delegation to attend the hearing at Austin, March 24.

MOODY LEADS FIGHT ON EAST TEXAS PRORATION

FORT WORTH, Tex., Mar. 17.—Ex-governor Dan Moody has been named by the East Texas Lease, Royalty and Producers Association to fight to prevent East Texas being put under proration with the remainder of the State on April 1.

COMPULSORY UNIT OPERATION OF POOLS

(Continued from Page 26)

the recoverable reservoir content if at the same time he can be required to share on a like basis in the cost of its recovery.

The State's Interest

The state is interested,

First: In the conservation of the irreplaceable oil and gas deposits within its boundaries, and in their production without waste, either underground or surface, for the use and enjoyment of its inhabitants as and when needed by them, and this includes future generations; and,

Second: In the protection of the several land proprietors and their lessees against the extraction or the dissipation and waste by any one or more of them of a disproportionate part of the oil and gas within the reservoir and in a fair and equitable distribution among all of them of the recoverable oil and gas therefrom.

These interests are to be manifested by an exercise of the police power.

Engineering Problems

The courts have held that in the absence of legislative restraint the owner of land or his lessee may produce through his wells all of the oil and gas that he is able to extract from the reservoir beneath without regard to where in the reservoir he may draw from and that he becomes the absolute owner of all thereof that he reduces to possession. If it is practicable by some method of testing wells drilled at selected sites, examination of sand

cores, etc., to estimate within reasonable bounds, not at all with mathematical accuracy, the fertility of that portion of the producing formation which lies under the surface of the land of each proprietor, then it is possible to appraise quantitatively the rights of each to a just distribution of the recovered oil and gas; or, there may be other standards for determining each man's fair part of what may be recovered. These are problems for the petroleum engineer. This suggestion anticipates unit operation with the inception of development; but, if it should come afterwards, the existing underground status (by which all concerned would doubtless find themselves bound) might be ascertainable by similar methods.

The United States Supreme Court in the case of Ohio Oil Vo. v. Indiana, 177 U.S. 190, 44 L.ed. 729, decided in 1900, gave to us the guiding principle when it said that from the peculiar nature of the right of each surface proprietor in a field and the objects upon which it is to be exerted, the legislative power can be manifested for the purpose of protecting all the collective owners by securing a just distribution to arise from the enjoyment by them of their privilege to reduce to possession. It made this guiding rule clearer when in the case of Walls v. Midland Carbon Co., 254 U.S. 300, 65 L.ed. 276, it said that "before the event occurs, indeed, in prevention of it, the state may interpose its power to prevent a waste or a disproportionate use of either oil or gas by a particular owner in order to conserve the equal rights of other owners and advance the public interest."

Recent Scientific Progress

Great progress has been made in recent years in the science of recovering, and that of conserving, oil and gas, including the discovery of the inestimable value of a properly controlled use of reservoir pressure. This discovery places a finger squarely on the reason for so much economic and underground waste. It furnishes a basis for an extension of the exercise of the legislative power to points further than it has ever gone, or, perhaps, in the case of some states, for the exercise by administrative agencies under existing laws of authority not previously undertaken. If proper use is made of this discovery, then the public and the producer are equally protected.

In the first place, each proprietor's constitutional right to enjoy his own property is satisfied when he is duly delivered his share of the production wholly without regard to whether this production comes out of the ground through wells drilled on his own land or those drilled on the lands of others. Each owner should, of course, in any event, be required to pay the cost of the recovery of his part.

City of Oxford Case

A case directly in point here is that of Marrs v. City of Oxford, 24 Fed. (2) 541, and (C.C.A.8) 32 Fed. (2) 134. An oil field encroached upon the city of Oxford, Kans., and the city council passed an ordinance prohibiting the drilling of more than one well in a city block. A permit for the drilling of such well was required to be obtained and the ordinance provided that all of the several proprietors or their lessees in each block should have the privilege of enjoying shares in the production from the one well which was allowed to be drilled, upon payment of their respective proportionate parts of the expense attending the drilling and operation thereof; and it provided that one-eighth of the production should be divided among the lessors of the leased lots without regard to cost and expense. Lot owners and a lessee filed suits attacking the validity of this ordinance on the ground that it deprived them of rights guaranteed by the Fourteenth Amendment to the Constitution of the United States. The ordinance was sustained as a valid exercise of the police power. It is obvious that in effect the provisions of said ordinance enforced the unit operation of each city block. There was no merger of titles, and yet, both lessees and royalty owners were bound by it. Each lessee was extended the opportunity upon fair terms, and the lessors unconditionally, to receive, by the asking, a fair share of the production from the one well; and the plan eliminated the costly race between those having equal rights.

If such a system for the development and operation of a city block, an enforced unit operation thereof, wherein there are a large number of separate lot owners, does not deprive any lot owner of any constitutional right, then why may not a like system for the unit operation of an area greater than the size of a city block, such as the whole of an oil field, be lawfully adopted and enforced? The only difference between the two lies in the territorial extent of the application of the same principle of regulation.

In that case the courts spoke of the economic waste in the drilling of unnecessary wells which was prevented by the ordinance; and they regarded the plan as coming within the holding in the Ohio Oil Co. case with reference to the power of the legislature to accomplish proportionality of taking from a pool.

W. P. Z. German
General Attorney, Skelly Oil Co.

150-Foot Rule

The 150-foot rule issued by the Railroad Commission of Texas and its enforcement is a step in the direction of a requirement of unit operation. The validity of this regulation and of a special order issued under it were assailed, but they were sustained in the case of Oxford Oil Co. v. Atlantic Oil & Producing Co. (D.C.E.D. Tex.) 16 Fed. (2) 639; (C.C. A.5) 22 Fed. (2) 597. The Oxford Oil Co. owned an oil lease on a strip of ground 3,160 feet long, 56 feet wide at one end and 36 feet wide at the other, in the heart of a prolific oil field in Texas. It had planned to drill 10 wells on this narrow strip. By an order the commission limited the Oxford company to the drilling of four wells and specified where they must be located. They were far from evenly spaced. The wells were drilled accordingly. Adjoining leases were large and wells on them did not match the Oxford's wells and were 150 feet away from the Oxford's lines. The company sued offset lessees and others for damages, claiming that it had been deprived of its right to drill desired wells on its leased land and thus was deprived of its property in violation of the Fourteenth Amendment to the Constitution of the United States. Judge Atwell, in deciding the case in the trial court, stated that an oil well will drain lands around it for 150 feet in every direction, and that the Oxford Oil Co. could not drill any well on their strip of land without draining the contiguous land, and that

> "if allowed to drill unsupervised, they would not only get all of the oil that was under their own land, but they would secure a large amount of property that belonged to others. They could not drill any well without this result. * * * I am convinced that the plaintiff's rights have not been violated and that the drillings allowed by the commission were consonant with the plaintiff's ownership, rights of development, and enjoyment, and the preservation of the property rights of neighboring and contiguous owners."

The circuit court of appeals said that:

> "The right of a State to so regulate the drilling of wells for oil and gas as to conserve the rights of adjoining owners is too well settled to admit of serious controversy."

If the power exists, as held in that case, to require a particular location or spacing of wells in a small limited portion of the area of a large oil field in order to accomplish a fair distribution of the production among a few producers in such limited area, then it necessarily follows that, for the same reasons and upon the same grounds, the power exists (and if circumstances require, it may be exercised) to regulate the spacing and location of wells throughout the entirety of any such field in order to accomplish a fair distribution among all of the producers therein.

It will not do to say that if the property boundary lines in a field happen to be so regularly fixed as that wells would be located in accordance with the prevailing practice of the industry, that is, one well to each 10 acres, and that if the field were developed according to custom no well would be nearer to a property line than 300 feet, the power of regulation would not exist. There, nevertheless, would still obtain the competitive struggle, confusion, wasteful haste, and undue dissipation of gas energy. In the absense of either voluntary or enforced orderly and regulated operation of the field, no fair distribution among the several leaseholders of the recoverable oil from the reservoir would be possible. The race for advantage would still obtain. There would be disproportionate takings and disproportionate and unfair use made of the commonly owned gas energy, and underground waste.

An Ancient Principle

The principle underlying the Ohio Oil Co. case and kindred decisions is not new. It is older than our Government. Many years ago it was stated by the courts that the Government has the power to prescribe regulations for the better and more economical management of property of persons whose properties adjoin, or which, for some other reason, can be better managed or improved by some joint operation. This early announcement was quoted by the United States Supreme Court in Wurts v. Hoagland, 114 U.S. 606, 29 L.ed. 229. It was long ago held by courts, as is shown by quotations in the Wurts case, that where there are adjoining lands held by various owners in severalty and which, by reason of the peculiar natural condition of the whole tract, cannot be improved or enjoyed by any of them without the concurrence of all, there is presented a condition where the power of the legislature may be exerted to establish regulations whereby all may be compelled to submit to proceedings whereby they may be improved or enjoyed, and to contribute, in proportion to the benefits enjoyed by each, to the expense of the steps taken to accomplish such improvement or enjoyment.

This principle has been applied in drainage cases, to party walls, partition fences and other conditions. Its application to a variety of situations, furnishes to us something which the supreme court did not expressly suggest in the Ohio Oil Co. case as a means for the accomplishment of an enforced fair and equitable distribution of the oil and gas reservoir content among the several proprietors whose lands lie within the pool; as well as means for preventing underground waste; and gaining economy in recovery.

The analogy between drainage cases and a requirement for the unit operation of oil pools seems to be clear. In the former, by reason of the peculiar natural conditions, the whole area cannot be improved or enjoyed to its full extent without the concurrence of all, and since all will not concur, they may be compelled to conform to a plan best calculated, on the whole, to secure and promote both the common interest of all and the individual interest of each of them. This same thing is manifestly true in the case of the oil pool. To apply this principle in the development and operation of oil pools would be only a new application of an old and well settled principle. The legislature of a State might authorize the creation of oil and gas conservation districts, with power in the owners of leases upon lands within an oil field or an area which may be thought to be underlaid with oil or gas, to organize such a district to be operated on the unit plan; all with the view to accomplishing two purposes, first, the prevention of the waste of oil and/or gas in the area for the general benefit of the public at large and to conserve them for use as and when needed by the public, and, second, to bring about a fair distribution of the content of the reservoir among the several land proprietors and to protect each against the extraction by any of a disproportionate part thereof. A saving in costs is an additional legitimate purpose.

In practice it would doubtless be almost universally true that the owners of leases upon a considerable portion of the acreage would agree to the unitization of their lands and they would be in a position to vote or petition for the establishment of an oil conservation district to be operated with a view to accomplishing the purposes above enumerated, and thereby force into the plan those unwilling to join it. Having been established pursuant to legislative enactment, royalty owners would be likewise bound. A particular area could be originally brought into the plan with the understanding that as development progressed, its boundaries could be extended; and, if land brought in proved to be outside the pool, it could be later excluded; as is done in drainage cases.

The police power, if exercised, can close the door to the desire of your neighbor to gain possession of your oil and gas deposits. It can remove from your neighbor his fear that you will gain possession of his. It can, if it will, adjust output to market demand and thus let the tankage of excess supplies rest where they should in nature's costless, wasteless and perfect warehouse. In times both of overproduction and underproduction, it can secure to lessees generally a realization of a fair ultimate profit on their estates, and to lessors generally a more protracted and satisfying reasonable income, while insuring the public at large a greater certainty of continuity of supply to meet its daily needs over an extended period of time, and thus promote the happiness, comfort and prosperity of the people.

CHEMICAL SOCIETY TO SEE FLAME PICTURES

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be small in comparison with the effects in the variation of sunlight intensity.

Other papers include, "The Carbureting Values of Gas Oils and a New Method for Their Laboratory Evaluation," by August Holmes, of the technical service division of the Standard Oil Co. of New Jersey; "Studies on Detonation," by Wheeler G. Lovell, John M. Campbell and T. A. Boyd, of the General Motors Research Laboratories; Elizabeth W. Aldrich, of Bureau of Standards, on "Solubility of Water in Aviation Gasolines."

Other speakers are: J. A. Mitchell, Emil Ott and E. Emmet Reid of Johns Hopkins University; S. W. Ferris, H. C. Cowles, Jr., and L. M. Henderson, of Atlantic Refining Co.; R. G. Sloane and Carl Winning, Standard Oil Development Co.; Dr. A. W. Francis of Arthur D. Little, Inc.; F. W. Sullivan, V. Vorhees, A. W. Neeley, R. V. Shanklard, of Standard Oil Co. of Indiana; S. C. Lind, University of Minnesota; P. K. Frolich and V. Schneider, Standard Oil Development Co.; L. F. Marek and W. B. McCluer, of Massachusetts Institute of Technology; G. L. Clark and H. A. Smith of University of Illinois.

More than 1,500 men and women of science are expected to attend the sessions of the society.

SIERRA LEONE DUTIES UP

Import duties on gasoline in Sierra Leone, British West Africa, have been increased from 8 cents to 12 cents per imperial gallon.

REFINERY MARKET MORE STABILIZED

(Continued from Page 20)

bbls. at the start of the gasoline consuming season will not materialize it is certain that they will not reach the 55,000,000-bbl. total of last year. Past history has shown that the gasoline market is influenced more by the crude oil situation than it is by gasoline inventories and should the crude price become stabilized there is every reason to believe that the refinery market can benefit from the curtailed plant operations of the past several months.

Gasoline and Naphtha

Several Oklahoma refiners reported more orders for the domestic grades of gasoline on Monday and Tuesday than on the same days of the previous two weeks. Much of the low priced U. S. Motor gasoline which was available from a few sources under 3½ cents has been purchased. However, quotations, for U. S. Motor gasoline at 3¼ to 3⅜ cents continue to be heard.

With many refiners selling a 410 to 420 endpoint gasoline with low initial as their regular grade of U. S. Motor gasoline, the regular 400 endpoint gasoline has little attraction for domestic buyers. This grade was sold as low as 3⅜ cents with 3¾ to 4¼ cents the usual price range.

The 390 and 375 endpoint grades are moving slowly on the domestic market with no export business reported. The 390 was quoted at a low of 4 cents and 375, 4¼ cents. The 350 and 360 endpoints have been sold as low as 4½ cents.

There is a fair demand for naphthas and they are more firmly held by buyers than are the regular grades of refinery gasoline. Most of the 450 endpoint naphtha available is in the hands of the larger refiners who are quoting the same price as they do for U. S. Motor gasoline. The higher endpoint naphthas, some ranging as high as 470 are more freely offered to blenders.

Natural Gasoline

Natural gasolines were selling the first of the week over a price range of 2¼ cents for Grade C to 3 cents for Grade A. Grade AA declined from 3 to 2⅝ cents and Grade BB was off one-eighth cent from the 2½-cent quotation of last week.

Although natural gasolines are quoted at the lowest levels that have ever prevailed since they became an important product of the petroleum industry the manufacturers are a unit in predicting a price recovery in the near future. While the movement has been slow due to conditions in the export and domestic market, there has been no large accumulation of natural gasolines, most manufacturers continuing to sell their output currently. This places the industry in a position to recover quickly with any improvement in the demand.

Distillates and Gas Oils

Furnace oil distillates and gas oils are the weakest products in the refinery list. Furnace oil buyers are confining their purchases to small lots needed to finish up the furnace oil season. Several sellers have material on hand which they do not care to carry over and have been willing to take extremely low prices to clean up their stocks.

With the kerosene demand slow and the furnace oil season near an end it is a question what refiners will do with those fractions of their crude oil. The only solution for many refiners will be enlarged cracking operations.

The 41-43 water white kerosene is quoted in Oklahoma at 2¾ to 3 cents and the higher gravities one-eighth cent higher. The 41-43 water white was available in North Texas as low as 2½ cents basis Oklahoma.

All grades of gas oils are dull and prices lower including the low cold test, low flash grades which were relatively strong through the winter months. Industrial grades of gas oil including U.G.I. material sold in Oklahoma at a low of 2⅝ cents with prices under those quotations in competitive refining groups. The low cold test furnace oil material sold at a low of 2¼ cents.

Bargain sales were reported in the higher gravity furnace oil distillates. The general price range on this material starts at a low of 2⅜ cents.

Fuel Oils

With very little spot trading in fuel oils, opinions vary as to market conditions. Except for occasional sales of distress material prices appear to be holding fairly well although the higher gravities in sympathy with overhead distillates and gas oil are slightly lower in price. Sales of 28-30 fuel oil have been made as low as 60 cents. In the lower gravities 40 cents is the low quotation except for exceptionally high cold test material.

Lubricants and Wax

No new developments are reported in the lubricant list. Some export business has been placed recently both in steam refined stocks and bright stocks. In order to compete with Gulf Coast refiners this business netted the Oklahoma refiners the lowest prices in several years. Wax sales for the 124-126 grade were made on a basis of 1¾ to 2 cents.

LOS ANGELES OIL SHOW A SUCCESS WITH LARGER CROWD THAN IN 1930

By L. P. Stockman

LOS ANGELES, Calif., Mar. 17.—The second annual Oil Equipment and Engineering Exposition being held in Los Angeles from March 16 to 22, inclusive, is exceeding the most sanguine expectations.

The attendance is greater than last year and the exhibition and display of equipment is more complete and covers a wider range than heretofore.

The new buildings erected this year exclusively for the equipment show are particularly adaptable to requirements as they permit the showing of heavy and large equipment, a thing which caused some little inconvenience last year.

Excellent accommodations have been provided for those visiting the show, ample provision having been made for the parking of automobiles and a number of other conveniences added.

The restaurant and cafe being run in conjunction with the show makes it possible for one to enter the grounds in the morning and remain until closing time in the evening.

One of the most interesting features in connection with the exposition is the unusually large attendance at group sessions and meetings of the various technical societies and associations affiliated with the oil industry.

A number of exhibitors have equipment moving under conditions similar to actual application in the field.

Everything in connection with the show has been running smoothly and exhibitors appear well pleased with both the attendance and inquiries, a number of tentative sales having been completed in the first few days.

Visitors from foreign countries and representatives from concerns operating outside the United States are quite numerous, more so than last year when a rather representative group was in attendance.

Many of the exhibitors at the second annual exposition have announced their intention of leaving their equipment as part of the permanent exposition.

OHIO OIL AND GAS MEN'S MEETING AT COLUMBUS DRAWS LARGE CROWD

By Marshall R. Hall

COLUMBUS, Ohio, Mar. 17.—Between 500 and 600 delegates assembled here today for the first convention of the Ohio Oil and Gas Men's Association held in two years. Gov. George White welcomed the convention and R. W. Gallagher of Cleveland, president of the East Ohio Gas Co., responded. L. K. Langdon of Cincinnati, general counsel for the Union Gas & Electric Co., presided. W. H. Thompson, Columbus, secretary of the association, opened the convention with his report and said that the days when public utilities made a fine football for politics were ended and that utilities nowadays are catering to the public through service and through special departments maintained to hear and interpret the wants of the people. This has taken utilities virtually out of politics, Thompson said, adding that another big step in growth came with decision to release to the public stock of the big utilities, this resulting in enormous public distribution and bringing in millions of individuals as owners of the corporations. In turn, he said, this meant that earnings instead of being distributed to a few, are now being paid out in dividends to huge masses of people, in Ohio especially.

Three sectional meetings were held. Distribution of natural gas was discussed under leadership of E. A. Munyon, Union Gas & Electric Co., Cincinnati. Production of natural gas was discussed under the leadership of J. G. Hanks, East Ohio Gas Co., Cleveland, and E. M. Tharpe of the Columbus Gas & Fuel Co. headed the division which took up public relations for action. N. S. Moore, Columbus; Charles Turner, Cleveland; A. C. Cherry, Cincinnati; Frank S. Williams, Columbus, and C. F. Demey, Columbus, were speakers. At the annual banquet Tuesday night, Michael Fiaschetti, New York detective; C. I. Weaver of Columbus were speakers, while Wednesday's convention will be conducted by W. T. Holliday, Cleveland, president of Standard Oil of Ohio; Edward C. Turner, Columbus, former attorney general of Ohio, and T. P. Kearns, superintendent of Ohio Safety and Hygiene.

NEW TARIFF INQUIRY

WASHINGTON, D. C., Mar. 14.—The United States Tariff Commission announces the institution of an investigation under Section 332(g) of the tariff act of 1930 for the purpose of ascertaining the differences in the costs of production of crude petroleum, fuel oil, gasoline and lubricating oils in the United States and in foreign countries.

TULSA SPRING MEETING OF PRODUCTION MEN

The Mid-Continent district of the American Petroleum Institute division of production will hold its regular spring meeting on March 27, in the Tulsa Club, Tulsa Building, Tulsa, starting the morning session at 9:30 with a paper by R. S. McFarland, vice president of Sunray Oil Co., on "Overproduction and Why."

The second paper for the morning session will be presented by H. M. Stalcup, vice president, Skelly Oil Co., Tulsa, on the "Economic Aspects of Oil and Gas Production."

Following the election of new officers, J. R. McWilliams, production engineer, Skelly Oil Co., Tulsa, will present a paper on "Plan for Better Utilization of Gas Energy in the Production of Oil."

The meeting will close after R. F. MacArthur, vice president, Barnsdall Oil Co., Tulsa, reads a paper entitled, "Unit Operation."

HEARING ON CODE

Granting the request of the American Petroleum Institute, the Federal Trade Commission will meet with representatives of the oil industry March 31 at 10 o'clock, 1800 Virginia Avenue, N.W., Washington, to review again the various sections of the code of ethics which the commission recently rejected.

RITZ-CANTON PRORATION CONTINUED VOLUNTARILY

A meeting of operators from the Ritz-Canton Pool, in McPherson County, Kansas, was held in Tulsa, March 17, and a continuation of the unit plan of proration was unanimously voted by all present.

The plan adopted by the operators was as follows: A 12-hour potential test will be made of all the present producing wells in the Ritz-Canton Field the first week in April. All wells spudded after March 17 will be allowed a 24-hour potential gauge and then be shut in for 30 days. After the shut-down period the allowed production of the wells will be on the basis of the initial test, according to the field allowance at the time the wells are opened, for a 30-day period. These same potentials will apply to the wells until a general field potential is taken of the area. The present plan of proration is based on the pipe line outlet which will be continued on the unit basis.

WILBUR ASKS MURRAY FOR CHANGE OF DATE

WASHINGTON, D. C., Mar. 17.—Replying to a request from Governor Murray of Oklahoma for a hearing on the oil problem faced by the producing industry, Dr. Ray Lyman Wilbur, chairman of the Federal Oil Board, said the board will be glad to have the Oil States Advisory Committee prepare a statement for an open meeting to be held here in April.

Secretary Wilbur also asked Governor Murray to move the date of the Washington meeting forward to April 9 or 10 in order to give the committee on economics, headed by E. B. Swanson, time to file its report on estimated supply and demand of oils for the coming year.

Late Fields

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and is in the center of a block of 3,700 acres solidly owned by the company.

KANSAS

Shell Petroleum Corp. and Youkers' No. 1 Sellers, SE cor. SW SW Section 19-19-1w, which extended the deep sand production a quarter of a mile west in the Ritz-Canton area, is to be given a 20-quart shot. After a swabbing test it is estimated at 325 bbls. a day. The shot is expected to increase production.

Brown and others' No. 1 Weidle, NE cor. NW Section 13-13-16w, in southeastern Ellis County, which was drilled deeper into the Silicious lime from 3,605 feet to 3,653 feet, has been abandoned.

OKLAHOMA

Russell Petroleum Co.'s No. 1 Reno, SW cor. NW NW Section 2-11-3w, in Oklahoma City Field, flowed 18,104 bbls. of oil in nine and one-fourth hours, cutting 14 per cent. The oil was found in the Wilcox sand at 6,240-6,551 feet.

Phillips Petroleum Co.'s No. 1 Winstead, SE cor. NE SW Section 10-11-3w, made 3,697 bbls. of oil in four hours from the Wilcox sand at 6,452-6,562 feet. Same company's No. 1 Crean, SE cor. NE Section 3-11-3w, flowed 5,205 bbls. of oil in four hours through a 4-inch choke. The production was found in the Wilcox sand at 6,261-6,358 feet.

Tom Slick Oil Co.'s No. 1 Blevins, NW cor. NE Section 10-11-3w, made 6,195 bbls. of oil in four hours from the Wilcox sand at 6,265-6,443 feet. The gas was estimated at 34,500,000 feet a day.

The second group of wells in the Greater Seminole area were opened March 16 to take a 10-day potential gauge. The Wanette and Konawa Pools will probably not be opened up for a 10-day flow at this time. The following are the gauges taken March 16:

Pool—	Wells	B'ls
Little River	369	48,142
East Little River	81	12,844
Carr City	48	6,40-
Mission	91	18,000
Rowlegs	276	29,052
East Earlsboro	153	33,455
Sasakwa	50	5,189

Oklahoma Gross Production, Fourth Quarter, 1930

Gross production report for fourth quarter of 1930, showing all production over $5,000 and all royalty of $2,000 and upwards. Names with (*) opposite represent royalty owners, those without are producers.

Name and address—	Barrels	M. feet	Amount
A			
Amerada Petroleum Corp., Tulsa	619,954.67	.....	722,584.85
Amerada Petroleum Corp., Tulsa	.....	1,330,820	26,232.05
Amerada Petroleum Corp.,* Tulsa	1,795.87	.....	2,330.76
Amerada Petroleum Corp.,* Tulsa	.....	6,264	129.20
Amerada Petroleum Corp.,* (suspense), Tulsa	.....	.....	4,038.22
Amerada Petroleum Corp. (suspense), Tulsa	46,631	.....	2,471.39
Arthur Oil Co., Sistersville, West Va.	8,937.42	.....	9,126.23
Arthur Oil Co., Sistersville, West Va.	.....	2,142	761.48
Atlantic Oil Producing Co., Dallas, Tex.	159,722.89	.....	173,989.94
Atlantic Oil Producing Co., Dallas, Tex.	.....	249,711	6,113.26
Atlantic Oil Producing Co.,* Dallas, Tex.	6,673.87	.....	7,462.79
Atlantic Oil Producing Co.,* Dallas, Tex.	.....	2,132	148.75
Anderson, C. L.,* Los Angeles, Calif.	28,068.67	.....	21,091.00
Anderson-Prichard Oil Corp., Oklahoma City	21,131.45	.....	25,422.01
Anderson-Prichard Oil Co. (by T. B. Slick Co.), Oklahoma City	.....	384,949	3,684.66
Accumulative Royalties Corp.,* Tulsa	10,111.22	.....	11,554.59
Accumulated Royalties Corp., Tulsa	.....	Gas	665.14
Acme Royalty Co.,* Ardmore	7,440.26	.....	9,300.20
Acme Royalty Co., Ardmore	.....	Gas	373.90
American Royalty Petroleum Co.,* Tulsa	2,318.76	.....	2,962.05
American Royalty Co., Tulsa	.....	Gas	244.60
Argo Oil Co., Denver, Colo.,	27,975.42	.....	33,023.35
Argo Oil Co., Denver, Colo.	.....	Gas	21.86
Wm. H. Atkinson (By T. B. Slick Co.), Okla. City	165,071.01	.....	183,296.08
Wm. H. Atkinson (By T. B. Slick Co.), Okla. City	.....	704,735	3,761.63
Wm. H. Atkinson,* Oklahoma City	.....	.....	82,877.70
American Maracaibo, N. Y. City	5,122.18	.....	6,858.27
S. A. Apple,* Oklahoma City	.....	.....	9,138.10
Anderson-Prichard Oil Corp., Oklahoma City	127,493.68	.....	138,165.38
Anderson-Prichard Production Corp., Okla. City	49,048.40	.....	52,452.15
Anderson-Prichard Production Corp., Okla. City	.....	Gas	8,353.78
Anderson-Prichard Corp.,* Oklahoma City	Oil	.....	14,324.76
Anderson-Prichard Co.,* Oklahoma City	.....	Gas	1,022.97
Claude E. Aikman,* Oklahoma City	.....	.....	3,620.24
Armor Oil and Gas Co., Duncan	.....	.....	9,652.17
Adams Royalty Co.,* Chicago, Ill.	29,750.16	.....	34,788.47
Adams Royalty Co.,* Chicago, Ill.	.....	Gas	3,658.00
Alma Petroleum Co., Oklahoma City	850.71	.....	804.44
Alma Petroleum Co., Oklahoma City	.....	88,520	7,393.63
H. N. and Ethel B. Andrews,* Newkirk	.....	.....	3,589.38
A. D. Adcock,* Okmulgee	.....	.....	2,222.46
E. N. Ainsworth,* Amarillo, Tex.	.....	.....	6,063.57
S. W. Anthony, Mounds	.....	.....	8,772.34
J. N. Anglin,* Tecumseh	2,328.78	.....	3,090.46
J. N. Anglin, Tecumseh	.....	Gas	9.27
Joe Abraham estate,* Bristow	.....	.....	3,948.49
Alco Royalty Co.,* Tulsa	1,500.65	.....	1,924.93
Alco Royalty Co., Tulsa	Oil	.....	7,220.20
Alco Royalty Co., Tulsa	.....	Gas	198.09
Alma Royalty Corp.,* N. Y. City	.....	.....	8,999.70
American Oil Refg. Co., Oklahoma City	15,270.00	.....	16,264.95
American Indian Royalties, Inc.,* St. Louis, Mo.	.....	.....	3,002.75
B			
Barnsdall Oil Co., Tulsa	134,363.29	.....	131,791.08
Barnsdall Oil Co., Tulsa	596,078.65	.....	638,228.79
Barnsdall Oil Co., Tulsa	.....	Gas	15,421.67
Blackwell Oil and Gas, Cushing	Oil	.....	248,319.58
Blackwell Oil and Gas, Cushing	.....	Gas	3,545.26
Brown-Barrett Oil Co.,* Shawnee	47,275.63	.....	48,011.74
Brown-Barrett Oil Co.,* Shawnee	.....	Gas	1,088.95
Brown-Barrett Oil Co. (By Fed. Natl. Bk. Trustee), Shawnee	37,737.10	.....	40,390.12
Brown-Barrett Oil Co. (by Fed. Natl. Bk., trustee), Shawnee	.....	Gas	1,019.84
Berry Petroleum Co., Tulsa	7,074.01	.....	7,170.65
Berry Petroleum Co., Tulsa	.....	Gas	673.20
Benedum-Trees Oil Co., Pittsburgh, Pa.	75,381.47	.....	86,281.49
British-American Oil Prod. Co., Tulsa	102,435.72	.....	109,857.10
Buell-Herndon & Co., Inc., Tulsa	17,297.10	.....	21,139.19
Bissett-Lytle and Gray No. 2, Tulsa	5,711.76	.....	5,273.59
Bissett-Lytle and Gray No. 1, Tulsa	7,919.62	.....	7,665.19
T. T. Baker,* Okmulgee	.....	.....	2,174.33
T. J. Baker,* Okmulgee	.....	.....	2,222.47
Elizabeth Ballard,* Cushing	.....	.....	2,018.93
Bart Royalty Co.,* Bartlesville	Oil	.....	4,787.79
Bart Royalty Co.,* Bartlesville	.....	Gas	105.85
Baker and Strawn, Tulsa	6,570.18	24,854	6,323.12
Catherine W. Borroto,* N. Y. City	.....	.....	5,760.68
Powell Briscoe,* Oklahoma City	.....	.....	7,942.11
E. F. Briscoe,* Oklahoma City	.....	.....	1,997.57
I. L. Brame,* Los Angeles, Calif.	.....	.....	13,156.64
Babcock Bros., Denison, Tex.,	5,777.23	.....	7,146.00
Rilla B. Berryhill,* Claremore	.....	.....	2,156.62
Earle Berryhill,* Sapulpa	.....	.....	2,389.84
J. B. Brady, Rock Island, Ill.,	.....	.....	5,376.86
Henry E. Bullock,* Chicago, Ill.	.....	.....	15,286.04
V. M. Bullock,* Shawnee	.....	.....	2,305.85
Jeanette A. Brooks,* Okemah	.....	.....	2,178.34
G. M. Berry,* Pawnee	.....	.....	6,410.59
T. N. & Harriett Berry,* Stillwater	.....	.....	6,397.60
Katie Snell nee Brown,* Dustin	.....	.....	2,570.25
A. J. Brown,* Marshall	.....	.....	2,546.89
Bryant Petroleum Co., Tulsa	6,368.40	.....	7,931.59
Bryan Petroleum Co., Tulsa	.....	38,038	4,278.62
Bilbo Oil Corp., Madill	14,044.76	.....	18,464.22
Bay State Oil & Gas Co., Kasas City, Mo.	7,993.78	.....	9,339.12
Bay State Oil & Gas Co., Kansas City, Mo.	2,551.54	.....	2,827.77
Brandenburg Bros.,* Norman	.....	.....	18,656.02
Brandenburg Bros., Norman	.....	Gas	461.65
Frank Buttram,* Oklahoma City	Oil	.....	7,343.44
Frank Buttram,* Oklahoma City	.....	Gas	512.85
Frank Buttram, Oklahoma City	.....	.....	1,538.51
Black-Sivalls and Bryson, Inc.,* Bartlesville	.....	.....	4,874.60
E. J. Blank,* Cushing	.....	.....	15,283.33
Bell Oil and Gas Co., Tulsa	5,110.49	.....	5,551.28
O. M. & Effie Boring,* Hobart	.....	.....	10,162.06
R. H. Burns (paid by Liberty Natl. Bank), Oklahoma City	25,762.75	.....	28,998.77
R. H. Burns,* Oklahoma City	.....	.....	1,616.67
O. V. Beck, Nocona, Tex.	38,170.80	.....	42,234.70
Bob Bradshaw, trustee, Tulsa	17,742.26	.....	18,909.79
Braden and Moore, Tulsa	4,236.27	.....	4,504.20
Braden Co., Tulsa	.....	.....	668.95
Baldwin and Sutton, Walters	6,342.76	.....	6,735.50
Iola Butler,* Wanette	.....	.....	3,739.75
C. B. Billington,* Shawnee	.....	.....	9,457.36
John Barry,* Oklahoma City	.....	.....	2,380.27
G. Q. & Ella Blue,* Winfield, Kans.	2,562.80	.....	2,384.72
Berry, Thomas N., and H. V.,* Stillwater	.....	.....	5,897.66
Boring, E. M., Oklahoma City	7,467.31	.....	7,807.68
Boring, E. M., Oklahoma City	.....	Gas	65.01
Bole, George S., Tulsa	6,323.43	.....	6,670.73
Bole, George S., Tulsa	.....	Gas	371.05
Bole, George S.,* Tulsa	.....	.....	1,522.06
W. H. Bailey,* Ogden, Utah	1,894.24	.....	2,037.64
Born, H. A., Seminole	.....	.....	7,098.33
Bradley, E. G., Wichita, Kans.	11,603.77	.....	13,071.54
Bi-State Oil & Gas Co., Wichita Falls, Tex.	5,281.66	.....	4,394.30
Barbara Oil Co., Chicago, Ill	4,773.44	.....	4,613.12
Barbara Oil Co., Chicago, Ill.	.....	32,457	1,284.94
Bivens, J. A., guardian,* Ardmore	.....	.....	3,016.64
Bridgeford, J. R., & Co., Synd.,* A-51, New York City	.....	.....	2,422.22
Breene, Frank M., trustee, Tulsa	.....	.....	5,505.27
Bruner, Joseph, Admr.,* Sapulpa	.....	.....	28,388.22
Baird, Mrs. Lulu,* Ada	.....	.....	2,888.47
Belco Royalties, Inc.,* New York City	.....	.....	22,401.06
Bullock Oil Co., Oklahoma City	87,083.00	.....	104,133.90
Bullock Oil Co., Oklahoma City	.....	181,937	1,008.15
Burke-Greis Oil Co., Tulsa	95,210.76	.....	106,419.58
Burke-Greis Oil Co., Tulsa	.....	Gas	21,802.71
Burke-Greis Oil Co.,* Tulsa	.....	.....	5,188.15
C			
Champlin Refining Co., Enid	136,530.90	.....	146,260.12
Champlin Refining Co., Enid	.....	478,059	32,177.67
Coline Oil Co., Oklahoma City	220,883.67	.....	235,327.93
Coline Oil Co., Oklahoma City	.....	1,187,112	20,117.49
Carter Oil Co., Tulsa	1,811,992.17	.....	1,926,218.82
Carter Oil Co., Tulsa	.....	Gas	117,120.00
Cosden, J. S., Inc., Fort Worth, Tex.	36,944.37	.....	44,237.02
Cosden, J. S., Inc., Fort Worth, Tex.	.....	Gas	2,140.88
Receivers for J. S. Cosden, Inc., of Oklahoma	35,907.79	.....	32,452.74
Receivers for J. S. Cosden, Inc., of Oklahoma	.....	Gas	1,466.35
Cosden, J. S., Inc., Fort Worth, Tex.	102,826.80	.....	129,367.97
Cosden, J. S., Inc., Fort Worth, Tex.	.....	Gas	4,299.26
Central Commercial Oil Co.,* Tulsa	2,250.06	.....	2,676.81
Central Petroleum Co., Tulsa	5,912.77	.....	5,969.01
Central States Production Corp., Tulsa	.....	158,368	3,789.92
Central Valley Oil Co., Cleveland, Ohio	.....	.....	4,921.57
Crosbie, J. E., Inc., Tulsa	42,410.40	.....	46,376.26
Consolidated Gas Utilities Co., Ponca City	.....	.....	34,637.44
Continental Oil & Ref. Co., Independence, Kans.	7,527.56	.....	6,861.68
Continental Oil & Ref. Co., Independence, Kans.	.....	Gas	37.50
Champlin & Bass, Inc., Holdenville	4,413.43	.....	4,962.67
Comar Oil Co., St. Louis, Mo.	369,313.30	.....	450,543.76
Comar Oil Co., St. Louis, Mo.	.....	473,493	28,193.17
Cities Service Gas Co., Bartlesville	.....	Gas	51,192.66
Creo Oil Co., Tulsa	6,403.19	.....	6,021.86
Citizens National Bank, Chickasha	.....	.....	11,278.78
Collins, June H.,* Tulsa	.....	.....	3,670.56
Campbell, J. D., Seminole	.....	.....	12,383.87
Cornell, Herman D., trustee, Los Angeles, Calif.	2,969.86	.....	4,099.48
Cornell, Herman D., trustee,* Los Angeles, Calif.	.....	.....	2,359.78
Cornell Oil Co.,* Denver, Colo.	.....	.....	2,190.80
Crews estate,* Enid	.....	.....	3,257.66
Carpenter, William G.,* Lees Summit, Mo.	.....	.....	2,394.88
Catlett, J. G., Tulsa	.....	.....	5,330.00
Cook, Anna S., Muskogee	.....	.....	6,977.60
Clubb, I. M.,* Kaw City	3,430.25	Gas	4,241.99
Colonial Royalties Co.,* Tulsa	.....	.....	2,544.66
Cudahy Oil Co., Cleveland, Ohio	10,933.97	.....	9,778.23
Chatham Oil Co., Tulsa	24,028.16	.....	26,549.86
Comegys, W. B.,* Oklahoma City	.....	.....	2,492.07
Capshaw, Fred,* Oklahoma City	.....	.....	3,408.57
Cline, William S.,* Newkirk	.....	.....	3,280.00
Cox, Anna Elizabeth,* Ardmore	.....	.....	2,014.61
Cook, William Jones,* Muskogee	7,769.63	.....	8,509.59
Cowden, Clark P., Duncan	.....	.....	8,122.88
Canary, S. C., Tulsa	5,520.51	.....	5,213.94
Critchlow, W. S., Ardmore	.....	.....	6,866.13
Crane, T. R., trustee,* Mannford	.....	.....	4,702.39
Campbell Realty Co. and E. D. Campbell,* Raymondville, Tex.	.....	.....	9,075.84
Clubb, Laura A.,* Tulsa	3,462.83	.....	3,910.34
Chestnut, O. G.,* Oklahoma City	.....	.....	4,017.36
Cowden, R. A.,* Shawnee	.....	.....	2,145.67
Cochran, A. D.,* Okmulgee	6,101.48	.....	7,015.27
Cochran, A. D.,* Okmulgee	.....	Gas	252.89
Cox, Edward B., and Jake L. Hamon, Ardmore	.....	.....	8,226.81
Commerce Royalty Co.,* Tulsa	2,171.16	.....	2,469.20
Cruce, M. K.,* Oklahoma City	.....	.....	2,735.87
Clauer, Jennie, Galena, Ill.	.....	.....	6,791.77
Carter, Sadie,* Oklahoma City	.....	.....	2,008.89
Cimarron Utilities Co., Guymon	.....	72,272	5,861.76
Continental Oil Co., Ponca City	437,716.64	.....	500,522.00
Continental Oil Co., Ponca City	.....	Gas	75,159.00
Cortez Oil Co.,* Tulsa	2,545.59	.....	3,076.37
Cortez Oil Co.,* Tulsa	.....	.....	662.00
D			
Darby Petroleum Corp., Tulsa	276,041.45	.....	295,312.80
Darby Petroleum Corp., Tulsa	.....	212,634	7,199.65
Devonian Oil Co., Tulsa	94,428.24	.....	108,300.97
Devonian Oil Co., Tulsa	.....	Gas	7,131.52
Dixie Oil Co., Tulsa	447,269.17	.....	530,593.64
Dixie Oil Co., Tulsa	.....	283,101	10,572.94
Dixon, W. E.,* Santa Ana, Calif.	.....	.....	1,963.46
Delaware Consolidated Oil Co., Tulsa	49,093.32	.....	44,232.43
Dunmar Oil Co., Duncan	13,674.04	.....	13,255.94
Davis, B. F.,* Wewoka	.....	.....	2,336.36
Darby Lynde Co., Tulsa	80,476.78	.....	93,826.73
Darby Lynde Co., Tulsa	.....	99,779	3,361.16
Darby Lynde Co.,* Tulsa	145.09	.....	153.87
Duniven, J. C.,* Oklahoma City	.....	.....	4,604.93
Dickson, J. H.,* Tulsa	.....	.....	15,239.76
Delmar Oil Co., Bartlesville	13,458.43	.....	14,385.94
Delmar Oil Co., Bartlesville	.....	13,676	136.76
Delmar Oil Co., Bartlesville	.....	C.H.50,084	2,289.91
Deep Rock Oil & Ref. Corp., Tulsa	362,899.30	.....	405,920.26
Deep Rock Oil & Ref. Corp., Tulsa	.....	287,445	22,673.40
Deep Rock Oil & Ref. Corp., Tulsa	.....	C.H.287,003	9,795.00
Deep Rock Oil & Ref. Corp., Tulsa (suspense)	.....	.....	5,146.47
Deep Rock Oil & Ref. Corp.,* Tulsa (suspense)	.....	.....	3,147.02
Denver Prod. & Ref. Co., Oklahoma City	39,613.93	.....	48,605.06
Denver Prod. & Ref. Co.,* Oklahoma City	11,279.36	.....	12,623.33
Duncan Wichita Falls Pipe Line Co., Wichita Falls, Tex.	11,197.60	.....	10,855.78
Dilley, W. Y., trustee,* Waurika	2,812.02	.....	2,676.53
Davidson, Robert T.,* London, Ohio	.....	.....	5,704.27
Douglass, M. S.,* Weleetka	.....	.....	2,126.30
Donahoe, D. J., and W. T.,* Ponca City	.....	.....	4,569.42
Donahoe, Mabel,* Ponca City	.....	.....	3,480.13
Donahoe, J. J.,* Ponca City	.....	.....	3,480.31
Downing, R. E., Inc., Tulsa	.....	.....	5,183.60
Deaner, J. J., Okmulgee	5,994.67	.....	6,668.79
Davidson, Thomas H.,* Okmulgee	.....	.....	3,739.75
Dunn, Lennie, and J. W.,* Oklahoma City	.....	.....	2,578.33
Dunn, R. L.,* Oklahoma City	.....	.....	3,315.00
Doss Oil Royalty Co.,* Oklahoma City	6,952.48	.....	7,798.90
Doss Oil Royalty Co.,* Oklahoma City	.....	Gas	891.48
Delaware Consolidated Oil Co., Tulsa	49,093.32	.....	44,232.43
Droppleman, John, Wewoka	.....	.....	33,879.00
Dillard, Mrs. V. E.,* Ardmore	.....	.....	4,642.56
E			
Empire Oil & Ref. Co., Bartlesville	343,781.73	.....	386,942.80
Empire Oil & Ref. Co.,* Bartlesville	17,197.99	.....	21,363.92

(Continued on Next Page)

OKLAHOMA GROSS PRODUCTION, FOURTH QUARTER, 1930

Name and address—	Barrels	M. feet	Amount
Empire Oil & Ref. Co., Bartlesville	.....	Gas	15,635.00
Empire Oil & Ref. Co., Bartlesville (prod. suspense)	.....	.....	86,058.95
Empire Oil & Ref. Co., Bartlesville (royalty suspense)	.....	.....	26,643.45
Elm Oil Co., Tulsa	10,181.63	.....	10,466.03
Elm Oil Co.,* Tulsa	1,704.40	.....	1,933.98
Elm Oil Co., Tulsa	728.85	.....	726.64
Eagle Picher Mining Co., Henryetta	2,702.44	80,344	7,641.33
Eastern Royalties Corp.,* New York City	.....	.....	2,497.06
Earlsboro Production Trust No. 2, Tulsa	11,735.29	.....	12,725.90
Emerson, Myron,* Oklahoma City	.....	.....	2,840.04
Ellison, Grace B.,* Okmulgee	1,917.60	.....	2,297.44
Eacock, George J.,* Oklahoma City	.....	.....	3,410.74
Eaves, S. A.,* Wynnewood	.....	.....	2,970.41
Eason Oil Co.,* Enid	24,350.07	.....	29,491.49
Eason Oil Co., Enid	165,050.64	.....	174,966.20
Ellis Drilling Co., Wichita Falls, Tex.	6,461.53	.....	6,241.32
Ellis Drilling Co., Wichita Falls, Tex.	.....	Gas	120.80
Equitable Royalty Corp.,* Oklahoma City	.....	.....	2,749.33
Engineers Royalty, Inc.,* New York City	.....	.....	2,431.14
F			
Franklin, Wirt, Ardmore	146,584.03	.....	166,458.69
Franklin, Wirt, Ardmore	.....	Gas	20,476.76
Franklin, Wirt,* Ardmore	Oil	.....	10,978.37
Franklin, Wirt,* Ardmore	.....	Gas	537.86
Franklin, Wirt, paid by Liberty National Bank	3,109.18	295	3,381.20
Franklin, Wirt, Petroleum Corp., Ardmore	882,865.74	.....	926,460.11
Franklin, Wirt, Petroleum Corp., Ardmore	.....	Gas	67,216.71
Finance Oil Co., Gowanda, N. Y.	10,061.40	.....	10,230.15
Foster Petroleum Corp., Bartlesville	16,818.50	.....	19,413.58
Foster Petroleum Corp., Bartlesville	.....	C.H.	876.44
Foster, James F., Anthony, N. M.	.....	.....	2,352.26
Franchot, D. W., & Co., Tulsa	24,080.06	.....	24,910.23
Franchot, D. W., & Co., Tulsa	.....	Gas	2,146.79
Fleming and Kimbell, Fort Worth, Tex.	4,657.54	.....	5,309.57
Franks, J. S., trustee, Oklahoma City	.....	Gas	31,925.60
Franks, M. H.,* Seminole	.....	.....	3,276.64
Freelove, Etta, and L. W.,* Chicago, Ill.	.....	.....	5,331.24
Freelove, Mrs. Etta,* Chicago, Ill.	.....	.....	4,142.98
Fore, J. C.,* Wewoka	.....	.....	4,541.88
Finnerty Inv. Co.,* Oklahoma City	.....	.....	3,325.25
Fern Oil & Gas Co., Yale	4,935.58	.....	5,563.56
Franco-Canadian Royalty, Inc.,* Toronto, Canada	.....	.....	8,894.62
Farley, G. W.,* Oklahoma City	.....	.....	3,730.96
Flynn Oil Co.,* Oklahoma City	.....	.....	2,457.52
Flynn Oil Co.,* Oklahoma City	.....	.....	3,942.79
Fidelity Royalty Co.,* Oklahoma City	.....	.....	4,174.46
Farwell, K. C.,* Chickasha	.....	.....	2,532.23
Fleet, John P., & John J.,* Ada	.....	.....	4,615.25
Fleet, D. F.,* Ada	.....	.....	13,811.74
Farlyn Oil Co., Houston, Tex.	11,111.86	.....	10,974.23
Fleet, Alice, guardian,* Ada	.....	.....	1,531.24
Fleet, Alice, guardian,* Ada	.....	.....	1,447.90
Foster & Davis, Inc., Bartlesville	6,536.81	.....	6,740.30
Flanagan, J. P.,* Tulsa	.....	.....	3,940.66
G			
Green, Myrtle, guardian,* Oklahoma City	7,510.40	.....	8,408.21
Goudie, A. R., and Allan B. Shantz,* Kitchener, Ontario, Canada	.....	.....	3,365.55
Gillespie, F. A., & Sons, Tulsa	15,522.49	.....	13,491.12
Greer, F. H.,* Tulsa	.....	.....	2,490.93
Gibson-Zahniser Oil Corp., Tulsa	1,534.37	.....	1,776.85
Gibson-Zahniser Oil Corp., Tulsa	.....	Gas	3,245.06
Garland, R. F., & Co., Tulsa	.....	.....	18,098.54
Glass, J. Wood, Nowata	5,705.06	.....	5,651.65
Grisso Royalty Corp.,* Enid	.....	.....	6,002.46
Getner, H. B., Tulsa	.....	.....	15,618.98
Gypsy Oil Co., Tulsa	1,714,870.36	.....	1,934,539.97
Gypsy Oil Co., Tulsa	127,833.69	.....	139,971.47
Gypsy Oil Co.,* Tulsa	1,763.85	.....	1,732.08
Gypsy Oil Co., Tulsa	.....	2,395,743	114,098.45
Gypsy Oil Co., Tulsa	.....	177,406	11,892.66
Gypsy Oil Co., Tulsa (suspense)	.....	.....	170.95
Gypsy Oil Co., Tulsa (suspense)	.....	.....	13,055.11
Gypsy Oil Co., Tulsa (suspense)	.....	.....	61,386.66
Gled Oil Co., Tulsa	31,526.50	.....	34,621.81
Grimes and Gillespie, Tulsa	10,152.85	.....	10,694.10
Galt-Brown Co., Ardmore	8,258.85	.....	8,235.74
Glass and Harmon, Nowata	9,988.48	.....	10,321.31
Gilcrease Oil Co., Tulsa	21,146.67	.....	17,142.35
Gilmer Oil Co., Ardmore	29,432.33	.....	26,185.78
Grisso, W. E.,* Seminole	.....	.....	19,456.64
Grisso, D. D.,* Seminole	.....	.....	3,124.33
Gates Oil Co., Ardmore	9,167.54	.....	8,106.51
Goddard Co.,* Ardmore	8,930.35	.....	6,647.13
Goddard Co.,* Ardmore	.....	Gas	181.97
Goforth, Mary,* Paid by I. T. I. O. (suspense)	.....	.....	3,777.02
Goffatt, W. C., trustee,* Toronto, Canada	.....	.....	14,484.30
Getner, H. B., Haskell	.....	.....	15,618.98
Gibson, E. S.,* San Benito, Tex.	.....	.....	8,101.86
Grieves, John B., Terlton	.....	.....	9,827.01
Graokla Gas Co., Wichita Falls	.....	Gas	34,223.68
Gardner Petroleum Co., Tulsa	6,358.05	.....	6,260.67
Gardner Petroleum Co., Tulsa	.....	Gas	420.46
Guaranty Trust Co. of New York, New York City	.....	.....	10,124.96
Giblet, Mrs. Ida.,* Oklahoma City	.....	.....	3,409.52
Gant, Walter H., and Knox L. Garvin, Ardmore	.....	.....	8,204.27
Graham, Florence N.,* Montebello, Calif.	.....	.....	3,136.54
Graham, Florence N.,* Montebello, Calif.	.....	.....	2,279.78
Galer Oil Co., Tulsa	.....	.....	9,118.72
Goetzke, Herman,* Harlington, Tex.	.....	.....	3,398.50
Gardner, Ed,* Mount Dora, N. M.	.....	.....	2,268.53
H			
Hull, J. A., Co., Tulsa	29,084.66	.....	33,479.67
Hull, J. A., Co., Tulsa	.....	Gas	410.20
Hales, W. T., Oklahoma City	32,025.98	.....	32,394.50
Hales, W. T., Oklahoma City	.....	34,806	1,229.36
Hales, W. T.,* Oklahoma City	1,836.37	.....	1,957.93
Hales, W. T.,* Oklahoma City	.....	10,424	152.06
Hall & Briscoe, Inc., Oklahoma City	150,197.80	.....	162,929.77
Hilton-Phillips,* Shawnee	.....	.....	39,744.86
Home Gas Co. of Cushing, Cushing	8,919.90	.....	15,717.70
Houghton Royalties Co.,* Oklahoma City	Oil	.....	12,719.27
Houghton Royalties Co.,* Oklahoma City	.....	Gas	948.32
Harris & Hays Co., Okmulgee	5,350.08	.....	6,615.73
Harris & Hays Co.,* Okmulgee	.....	.....	1,791.33
Harris, E. L., trustee,* Tulsa	.....	.....	6,580.00
Harris, E. L., trustee, Tulsa	.....	.....	43,003.64
Harris, F. H.,* Oklahoma City	.....	.....	2,637.64
Harris, V. V.,* Oklahoma City	.....	.....	6,653.67
Heenan-Coe Co.,* Oklahoma City	.....	.....	7,096.18
Heenan-Coe Co.,* Oklahoma City	47,772.52	.....	54,896.60
Harland Oil Co., Walco	14,880.13	.....	12,962.65
Harland Oil Co., Walco	.....	56,091	2,060.26
Hesco Oil Royalty Corp.,* New York City	Oil	.....	2,216.09
Hesco Oil Royalty Corp.,* New York City	.....	Gas	55.54
Hayes, Samuel W., Oklahoma City	17,976.13	.....	21,423.72
Hayes, Elizabeth Crockett, Oklahoma City	11,018.51	.....	13,330.52
Heenan-Coe-Cook-Cunningham Royalty Owners,* Oklahoma City	.....	.....	10,682.05
Highway Refining Corp., Tulsa	21,245.29	.....	24,797.81
Highway Refining Corp., Tulsa	.....	Gas	115.44
Houston Oil Co. of Texas, Houston, Tex.	27,268.21	.....	30,213.65
Houston Oil Co. of Texas, Houston, Tex.	.....	21,976	367.47
Hewitt Oil & Gas Co., Ardmore	.....	.....	10,210.00
Hall, J. E., Holdenville	.....	.....	9,029.32
Hall, E. D., attorney for Thomas Ryan, Wetumka	.....	.....	4,095.47
Head, Frank M.,* Ardmore	2,353.40	.....	2,685.01
Head, Frank M.,* Ardmore	.....	Gas	76.97
Haddad, N. George,* Brooklyn, N. Y.	.....	.....	7,593.63
Hooks, James,* Tatums	.....	.....	2,312.40
Harber, W. E., Seminole	.....	.....	14,196.66
Harber, W. E.,* Seminole	.....	.....	5,409.35
Hemlock Oil Co.,* Tulsa	.....	.....	4,948.98
Hay & McClure, Inc., Peoria, Ill.	7,768.69	.....	9,032.79
Hay & McClure, Inc., Peoria, Ill.	.....	Gas	390.60
Home Stake Royalty Corp., Tulsa	.....	.....	1,867.28
Home Stake Royalty Corp.,* Tulsa	Oil	.....	56,452.91
Home Stake Royalty Corp.,* Tulsa	Oil	.....	9,945.43
Home Stake Royalty Corp.,* Tulsa	.....	Gas	525.93
Home Stake Oil & Gas Co.,* Tulsa	.....	.....	3,632.99
Henderson Oil Co., Marietta, Ohio	6,331.33	.....	6,091.57
Hunter, D. B.,* Tulsa	.....	.....	3,766.67
Harmon, C. C.,* Nowata	.....	.....	2,151.00
Hickman and Heydrick, Wichita Falls, Tex.	5,804.81	Gas	6,438.63
Hall, F. C.,* Oklahoma City	.....	.....	3,934.43
Hall, W. B., receiver,* Oklahoma City	.....	.....	3,934.43
Harper, F. E., and Roy J. Turner,* Oklahoma City	.....	.....	3,807.43
Harmon, C. C., Nowata	.....	.....	11,745.92
Hallenbach, Anna W., Shelbyville, Ky.	.....	.....	5,754.92
Hallum, W. D.,* Ada	.....	.....	6,278.00
Haskell, Frank, agent, Tulsa	9,218.19	.....	8,356.86
Hemming, H. H.,* Oklahoma City	.....	.....	1,349.45
Hernstadt, N.,* New York City	3,424.51	.....	3,126.46
Harlan, A. D., agent, Hawarden, Iowa	4,228.44	.....	4,420.38
Herndon, Mace, and Dora,* Sulphur	.....	.....	2,955.88
Huddleston, W. E., trustee,* Konawa	.....	.....	5,285.46
Hopper, P. M.,* Lubbock, Tex.	.....	.....	4,965.74
Holmans, Ed. S., Inc., Oklahoma City	9,012.47	.....	14,149.58
Holmes, Jeanette Lewis,* Oklahoma City	.....	.....	26,106.89
Hartley, J. C., agent,* Gotebo	.....	.....	2,182.85
Harber, Claude,* Seminole	.....	.....	2,128.31
Harber, T. W.,* Seminole	.....	.....	6,957.90
Hudson, Hargrove,* Tulsa	.....	.....	2,997.56
Hefner Co.,* Oklahoma City	.....	.....	4,810.51
Harris & Haun, Inc., Blackwell	Oil	.....	10,035.95
Harris & Haun, Inc., Blackwell	.....	Gas	2,540.67
Harris & Haun, Inc., Blackwell	.....	C.H. Gas	70.65
I			
Indian Territory Illuminating Oil Co., Bartlesville	3,036,487.71	.....	3,381,855.54
Indian Territory Illuminating Oil Co.,* Bartlesville	47,512.44	.....	56,928.11
Indian Territory Illuminating Oil Co., Bartlesville	.....	2,582,416	176,570.73
Indian Territory Illuminating Oil Co., Bartlesville	.....	CH.11,747,655	78,207.89
Indian Territory Ill. O. Co.,* Bartlesville (suspense)	.....	.....	20,984.51
Indian Territory Illuminating Oil Co.,* Bartlesville	.....	C.H.	3,473.32
Indian Territory Illuminating Oil Co.,* Bartlesville	.....	Nat. 144,563	8,709.75
Ingram, H. L.,* Shawnee	.....	.....	2,842.26
Indiana Oil & Gas Co., Tulsa	22,896.55	.....	23,506.48
Indiana Oil & Gas Co., Tulsa	.....	17,052	2,678.70
Indian Royalty Co., Oklahoma City	8,186.43	.....	9,561.98
Indian Royalty Co.,* Oklahoma City	13,889.67	.....	15,443.38
Imperial Royalties Co.,* Kansas City, Mo.	Oil	.....	43,036.34
Imperial Royalties Co.,* Kansas City, Mo.	.....	Gas	2,291.84
Investors Royalty Co., Inc.,* Tulsa	37,354.60	.....	42,386.56
Ingram, J. A.,* Shawnee	.....	.....	3,906.09
Ingram Royalty Co.,* Shawnee	.....	.....	3,625.62
Iron Mountain Oil Co., Tulsa	8,620.60	31,582	11,104.86
Imo Oil & Gas Co., Covington	.....	.....	5,581.93
Iowa Oil & Refining Co.,* Hawarden, Iowa	.....	.....	2,058.45
J			
Jameson & Byron,* Shawnee	.....	.....	2,530.22
Jones, J. Edward, paid by Bank of American National Association, trustee,* New York City	.....	.....	8,925.90
Jackson, L. B., Tulsa	.....	.....	9,252.05
Jackson, L. B.,* Tulsa	.....	.....	1,801.67
Jacobs, Leo, St. Louis, Mo.	6,666.70	.....	5,808.20
Julian C. C., Royalty Co., Oklahoma City	15,060.01	.....	14,641.77
Julian, C. C., Royalty Co.,* Oklahoma City	2,885.39	.....	2,723.86
Jameson, John B.,* Concord, N. H.	3,833.30	.....	4,598.96
Jarvis-Zollinger,* Shawnee	.....	.....	6,317.64
Johnson Oil Refining Co., Chicago, Ill.	22,101.35	.....	24,940.36
Johnson Oil Refining Co., Chicago, Ill.	.....	13,973	659.58
Johnston, Beth L.,* Wichita, Kans.	.....	.....	2,310.77
Johnson, C. O., and George C. Pendleton, receivers,* Durant	.....	.....	2,190.00
Johnson, B. F., and Mary Eva,* Seminole	.....	.....	5,997.68
Jones, Robert L.,* Bristow	.....	5,623	542.95
Jones, Robert L.,* Bristow	3,370.29	.....	4,095.24
Jones, E. W., & F. D., Drilling Co., Oklahoma City	.....	.....	24,687.38
Jones, H. W.,* Oklahoma City	.....	.....	6,448.23
Jones, W. M.,* Oklahoma City	.....	.....	9,513.33
Jones, R. C., & Co., Inc., Cushing	.....	.....	7,648.21
Jordan, P. E. V.,* Maud	.....	.....	2,523.36
Jennings, Helen S.,* Oklahoma City	.....	.....	2,504.15
Jennings, Randolph P.,* Beverly Hills, Calif.	.....	.....	2,986.29
K			
Keener Oil & Gas Co., Tulsa	32,273.78	.....	30,876.55
Keener Oil & Gas Co., Tulsa	.....	1,462	57.11
Kimble, C. C., & Sallie H.,* Beggs	.....	.....	3,372.15
Kay Oil Co., Blackwell	12,955.78	.....	15,273.01
Kewanee Oil & Gas Co., Titusville, Pa.	128,086.52	.....	150,956.87
Kewanee Oil & Gas Co., Titusville, Pa.	.....	1,001,937	14,687.44
King, Helen Walker, guardian,* Orange, Calif.	.....	.....	1,668.15
King, Helen Walker, guardian,* Orange, Calif.	.....	.....	7,318.19
Knickerbocker Royalty Corp.,* New York City	.....	.....	6,725.33
Klein, Nettie,* New York City	.....	.....	3,101.85
Kanner, Mack,* New York City	.....	.....	2,661.87
Kay County Gas Co., Ponca City	.....	545,319	54,193.27
Kay & Kiowa Oil Co., Tulsa	3,847.40	.....	4,156.70
Kay & Kiowa Oil Co., Tulsa	.....	Gas	453.72
Kingwood Oil Co., Okmulgee	22,890.64	.....	26,182.33
Kingwood Oil Co., Okmulgee	.....	19,231	1,251.33
Kreola-Colcord Commerce Co., Ardmore	7,027.53	.....	5,694.89
Knox, Charles E., & Co., Enid	639.73	3,968	853.39
Knox, Charles E., Enid	15,600.44	8,673	16,433.72
Knox, R. B.,* Oklahoma City	.....	.....	4,101.68
Knappenberger, Frank,* Phoenix, Ariz.	.....	.....	5,194.69
Kershaw, L. R.,* Muskogee	.....	.....	2,302.36
Kelly, Albert,* Bristow	.....	.....	2,019.96
Knotts, Sarah J.,* Stillwater	3,486.58	.....	3,908.05
L			
Landowners Royalty Co.,* Wewoka	.....	.....	2,084.83
Laurel Oil & Gas Co., Philadelphia, Pa.	49,457.65	.....	53,770.60
Laurel Oil & Gas Co., Philadelphia, Pa.	.....	181,099	3,023.79
Louisiana Oil Refining Co., Shreveport, La.	54,766.84	.....	45,924.67
Louisiana Oil Refining Co., Shreveport, La.	.....	92,722	1,839.51
Lawson Petroleum Co., Tulsa	4,565.96	.....	4,938.56
Lima Oil & Gas Co., Bartlesville	4,655.14	.....	4,981.00
Lima Oil & Gas Co., Bartlesville	.....	.....	19,924.36
Lack, B. D.,* Oklahoma City	.....	.....	5,247.53
Lack, Matyse B.,* Oklahoma City	.....	.....	2,807.77
Lack, B. D.,* Oklahoma City	.....	.....	1,626.35
Little Nick Oil Co., Chickasha	.....	.....	22,371.07
Laselle, B. A., & T. E., Ada	Oil	.....	32,562.84
Laselle, B. A., & T. E., Ada	Oil	.....	7,249.37

(Continued on Next Page)

OKLAHOMA GROSS PRODUCTION, FOURTH QUARTER, 1930

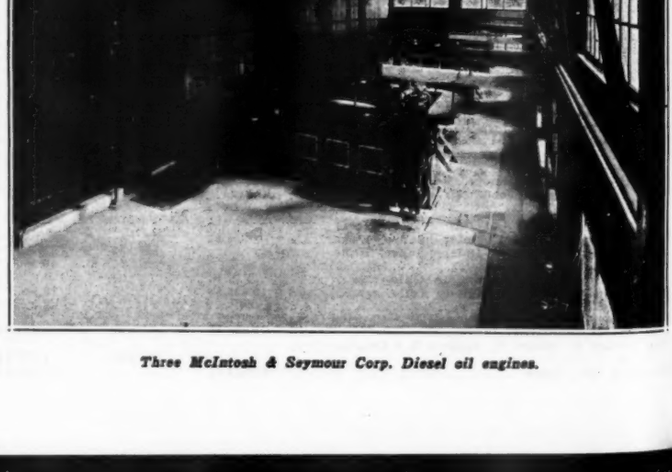
Name and address—	Barrels	M. feet	Amount
Laselle, B. A., & T. E.,* Ada	.....	.....	2,332.96
Ligon, J. A.,* Wewoka	.....	.. ..	2,403.88
Lowery, Lucinda H.,* Los Angeles, Calif.	9,595.77	.. ..	11,590.95
Lynch, C. B.,* Tulsa	2,375.96	.....	2,852.13
Lybrand, W. A.,* Oklahoma City	.....	.....	2,745.26
L. T. C. Oil & Gas Royalty Trust, Oklahoma City	.....	.....	2,682.66
Lesh & McCall et al, Nocona, Tex.	7,002.92	.. ..	4,820.03
Lahman, Mrs. S. E.,* Altus	.....	.....	3,881.21
Landon, A. M., Independence, Kans.	4,260.11	.....	4,479.33
Landon, A. M., Independence, Kans.	.....	Gas	797.83
Landers and John,* Ocheleta	.....	.....	3,923.90
Lamb, Homer T.,* Tulsa	.....	.....	3,800.67
LaForce & Ferguson,* Limon, Colo.	.....	.....	2,337.98
Lamb, Homer T.,* Tulsa	.....	.....	3,800.67
Ligon, J. A.,* Wewoka	.....	.....	2,043.88
Link Oil Co., Tulsa	19,620.10	.....	20,798.44
Link Oil Co., Tulsa	.....	Gas	207.77
Mc			
McMahan, C. L., & C. L. McMahan, Inc., Tulsa	56,822.81	.....	62,014.48
McMahan, C. L., and C. L. McMahan, Inc., Tulsa	.....	Gas	3,089.74
McMahan, C. L., and C. L. McMahan, Inc.,* Tulsa	6,524.22	.....	6,327.01
McMahan, C. L., and C. L. McMahan, Inc.,* Tulsa	.....	Gas	109.10
McMan Oil & Gas Co., Tulsa	75,904.87	.....	87,114.33
McMan Oil & Gas Co., Tulsa	.....	Gas	4,785.82
McGee, R. L.,* Tuttle	.....	.....	4,605.01
McQueen, I. R.,* Oklahoma City	4,773.78	.....	5,463.25
McKee, S. H.,* Tonkawa	.....	.. ..	5,739.28
McAnsh, B. A.,* Chicago, Ill.	.....	.. ..	3,266.78
McCroskey, Carrie, and Edgar L.,* Maysville	.....	.. ..	5,594.29
McCartney, E. M.,* Alma	.....	.....	2,307.95
McSwain, Foster,* Alma	.....	.....	2,594.67
McDaniel, W. F.,* Tonkawa	.....	.....	2,385.74
McRoberts Royalty Co.,* Tulsa	.....	.....	3,263.48
McBride, W. C.,* St. Louis, Mo.	.....	.....	24,820.13
McBride, W. C.,* St. Louis, Mo.	.....	.....	875.50
McGraw Oil Co., Tulsa	.....	.....	14,828.33
McDonough, W. W.,* Wewoka	.....	.....	844.04
McDonough, W. W., trustee,* Wewoka	.....	.....	3,045.87
M			
Magnolia Petroleum Co., Dallas, Tex.	2,401,790.22	.....	2,360,799.81
Magnolia Petroleum Co., Dallas, Tex.	3,119,714.00	Gas	155,269.60
Magnolia Petroleum Co.,* Dallas, Tex.	21,634.25	.....	24,971.61
Magnolia Petroleum Co.,* Dallas, Tex.	.....	Gas	2,345.16
Magnolia Petroleum Co.,* Dallas, Tex. (suspense)	.....	.....	5,710.00
Magnolia Petroleum Co.,* Dallas, Tex. (suspense)	.....	.....	10,320.00
Magnolia Petroleum Co., Dallas, Tex. (protest)	.....	.....	43,916.30
Mid-Continent Petroleum Corp., Tulsa	1,476,481.63	.. ..	1,612,196.40
Mid-Continent Petroleum Corp.,* Tulsa	6,048.15	.....	6,085.00
Mid-Continent Petroleum Corp., Tulsa	.....	Gas	56,028.06
Mid Western Oil & Gas Co., Okmulgee	.....	603,918	36,235.09
Mid-Kansas Oil & Gas Co., Findlay, Ohio	401,338.53	.....	410,776.43
Mid-Kansas Oil & Gas Co., Findlay, Ohio	.....	608,879	22,303.17
Mid-Kansas Oil & Gas Co.,* Findlay, Ohio	.....	.....	1,119.98
Midco Oil Corp., Tulsa	16,333.57	.....	16,885.53
Margay Oil Corp., Tulsa	36,077.48	.....	40,223.57
Margay Oil Corp., Tulsa	.....	Gas	536.73
Margay Oil Corp.,* Tulsa	879.08	Gas	1,178.12
Mul-Berry Oil Co., Cushing	.....	.....	104,664.51
Midland Royalty Co.,* New York City	.....	.....	47,725.59
Murphy Oil Co. of Pennsylvania, Philadelphia, Pa.	12,959.24	.....	12,335.64
Mudge Oil Co., Pittsburgh, Pa.	17,535.36	.....	10,561.85
Mammoth Royalty Corp.,* Oklahoma City	3,259.07	.....	3,610.92
Maud Oil & Gas Co., Oklahoma City	4,299.43	.....	4,993.78
Meridian Gas Co., Dallas, Tex.	.....	126,398	10,111.84
Mullendore Trust Co., Cleveland	.....	.....	15,603.64
Mullendore Trust Co.,* Cleveland	.....	.....	2,662.24
Mullendore Trust Co.,* Cleveland	.....	Gas	228.48
Moffitt, Melvin E.,* San Antonio, Tex.	.....	.....	2,136.99
Mathis, M. P.,* Shawnee	.....	.. ..	6,921.49
Milner, H. G., and Anna,* Moore	.....	.....	6,316.32
Milner, Jonas B.,* Allen	.....	.....	2,483.00
Mayes, E. L.,* Tulsa	.....	.....	7,881.03
M. K. T. Railway Co.,* St. Louis, Mo.	2,050.63	.....	2,417.46
Million and Thomas,* McAlester	2,711.04	.....	2,664.27
Mitchell, W. E.,* Ardmore	4,458.65	.....	3,099.59
Musselem, Sophia S.,* Muskogee	2,618.35	.....	3,746.92
Musselem, Sophia S.,* Muskogee	.....	Gas	2,817.23
Melton, Alice, administratrix,* Duncan	.....	.. ..	15,493.66
Markham, J. H., Jr., Tulsa	14,582.98	.....	11,363.00
Moore, Clint, estate, Tulsa	10,556.21	.....	5,786.94
Marileen Oil & Gas Co., Blackwell	4,961.69	.....	2,738.08
Meadors, Frank, Jr.,* Wetumka	2,439.70	.....	6,983.98
Madden & Madden, Lexington, Ky.	6,260.92	.....	175,271.30
Minnehoma Oil & Gas Co., Tulsa	153,274.56	.....	13,050.49
Minnehoma Oil & Gas Co., Tulsa	.....	403,949	35,920.33
Merrick, F. W., Inc., Ardmore	Oil	.....	253.22
Merrick, F. W., Inc., Ardmore	.....	Gas	4,089.00
Merrick, Ward S., Ardmore	.....	.....	5,934.26
Misener, F. D., Tulsa	6,506.72	.....	2,912.06
Minor, Laveda,* Amarillo, Tex.	.....	.....	4,947.32
Martin, Frank G.,* Oklahoma City	.....	.....	5,278.92
Malernee Oil Co., Oklahoma City	4,850.39	.....	137.60
Malernee Oil Co., Oklahoma City	.....	Gas	
N			
National Refining Co., Cleveland, Ohio	12,983.21	Gas	15,604.08
National Oil & Development Co., Tulsa	9,879.25	.....	9,790.54
National Union Oil & Gas Co., Blackwell	4,216.48	.....	5,247.68
National Union Oil & Gas Co., Blackwell	.....	Gas	76.94
Norwood Oil Co., Tulsa	6,790.75	.....	6,168.44
Neal, John A., & Beulah,* Wanette	.....	.....	4,383.72
Noble, Margaret Vivian,* Tulsa	4,717.78	.....	5,741.69
Noble-Olson Drilling Co., Tulsa	24,261.54	.....	21,186.39
Norton, D. J.,* Chandler	.....	.....	2,277.13
Norris, W. C., Tulsa	.....	.....	6,773.03
Nichols, G. A., No. 4, Oklahoma City	.....	.....	3,267.55
Nicholos Royalty Co.,* Chickasha	.....	.....	2,549.96
Nicholos Royalty Co., Chickasha	Oil	.....	1,561.48
Nicholos Royalty Co., Chickasha	.....	Gas	7,931.52
Neff, William,* Tulsa	.....	.....	4,713.00
Nester Oil Co., Alex	.....	.....	2,224.21
Neal, Mrs. J.,* Maysville	.....	.....	2,896.77
New York Petroleum Co.,* Muskogee	3,092.05	.....	4,087.53
Noble, Hattie E.,* Ardmore	.....	.....	2,009.92
Noble, Eva E.,* Ardmore	.....	.....	2,679.86
Natural Gas Producers Corp., Tulsa	.....	595,637	58,350.61
Newbern, S. C.,* Byars	.....	.....	4,502.48
Neubert, Charles,* Baltimore, Md.	.....	.....	14,930.78
Nesbitt, Carrie Lee,* Tecumseh	.....	.....	3,137.46
O			
Osage Gas Producing Co., Independence, Kans.	348.11	.....	332.79
Osage Gas Producing Co., Independence, Kans.	.....	137,842	12,405.78
Ona Oil Co., Blackwell	.....	.....	13,194.82
Ohio Fuel Supply Co.,* Columbus, Ohio	.....	.....	1,320.72
Ohio Fuel Supply Co., Columbus, Ohio	15,635.80	.....	19,247.20
Orwig, S. S.,* Wewoka	.....	.....	4,938.65
Olds, Horace B., Helen B., Russell B.,* Charles City, Iowa	8,323.92	.....	9,444.64
Olds, Horace B., Helen B., Russell B.,* Charles City, Iowa	.....	29,605	1,776.29
Oklahoma Co., Tulsa	65,521.65	.....	67,986.09
Oklahoma Co., Tulsa	.....	Gas	7,546.65
Olean Petroleum Co., Bristow	8,569.38	.....	10,395.06
Olean Petroleum Co., Bristow	.....	Gas	6,236.11
Oklahoma Public Service Corp., Cedar Rapids, Iowa	4,950.00	Gas	14,615.18
Owens, O. O., Tulsa	3,055.48	.....	3,897.00
Owens, O. O., Tulsa	Oil	.....	822.23
Owens, O. O., Tulsa	.....	Gas	304.11
Owens, O. O.,* Tulsa	.....	.. ..	1,310.00
Oil Producing Royalties, Inc.,* Elizabeth, N. J.	.....	.....	2,546.04
Osborn, W. B.,* Ada	.....	.....	6,613.09
Osborn, W. B., and D. F. and J. J. Fleet,* Ada	.....	.....	8,607.25
Oklahoma Natural Gas Corp., Tulsa	.....	293,618	28,674.60
Oils, Inc., Co., unit holders of No. 1 Ross, Oklahoma City	.....	.....	30,298.39
Oils, Inc., Co., Oklahoma City	76,519.75	.....	65,439.30
Operators Royalty & Prod. Co.,* Tulsa	.....	.....	2,018.63
Oliphant, A. G., Tulsa	5,730.48	.....	6,212.91
Osage Indian Agency, superintendent, Pawhuska	.....	.....	666,891.66
P			
Prairie Oil & Gas Co., Independence, Kans.	2,300,396.49	.....	2,583,673.04
Prairie Oil & Gas Co., Independence, Kans.	.....	445,521	24,247.41
Prairie Oil & Gas Co., Independence, Kans.	.....	C.H. 2,860,376	147,036.42
Prairie Oil & Gas Co., trustee, Independence, Kans.	3,018.56	.....	3,008.24
Phillips Petroleum Co., Bartlesville	859,812.25	.....	949,536.55
Phillips Petroleum Co., Bartlesville	.....	Gas	103,517.66
Phillips Petroleum Co.,* Bartlesville	4,259.35	.. ..	5,347.39
Phillips Petroleum Co. for others, Bartlesville	.....	.....	13,405.60
Pure Oil Co., Chicago, Ill.	.....	734,323	32,714.29
Pure Oil Co., Chicago, Ill.	804,911.59	.....	881,258.41
Pure Oil Co. (Gasoline Div.), Chicago, Ill.	.....	164,955	13,023.30
Producers & Refiners Corp., Independence, Kans.	174,710.84	.....	158,786.57
Producers & Refiners Corp., Independence, Kans.	.....	386,491	15,765.60
Producers & Refiners Corp.,* Independence, Kans.	.....	.....	6,864.44
Producers Oil Co., Tulsa	66,857.68	.....	75,521.39
Papoose Oil Co., Tulsa	39,530.85	157,335	48,246.84
Papoose Oil Co., Tulsa	1,458.42	.....	1,498.54
Pine, W. B., Okmulgee	14,158.67	.....	15,169.09
Pine, W. B. and Phillips Petroleum, Okmulgee	1,134.48	.....	1,269.66
Pine, W. B., Okmulgee	40,781.00	.....	41,608.21
Pine, W. B., Okmulgee	10,805.65	.....	15,476.57
Pine, W. B., Okmulgee	13,440.66	.....	18,612.66
Pine, W. B., Okmulgee	13,832.44	.. ..	21,194.62
Provident Royalties Corp.,* Tulsa	.....	.....	6,194.00
Petroleum Royalties Corp.,* New York, N. Y.	.....	.....	4,851.77
Petroleum Royalties Corp.,* Tulsa	.....	.....	67,924.48
Petroleum Co. and M. H. Mosier, Tulsa	11,091.77	.....	11,387.61
Petroleum Co. and M. H. Mosier, Tulsa	.....	10,859	521.37
Petroleum Co., Tulsa	4,470.97	.....	4,628.14
Petroleum Co., Tulsa	.....	5,651	287.53
Petroleum Royalty Corp.,* Tulsa	8,434.94	.....	10,572.37
Paraffine Oil Co., Houston, Tex.	6,909.84	.....	6,439.74
Plains Petroleum Corp., Oklahoma City	5,320.76	.....	5,343.13
Paragon Oil Co., Tulsa	4,641.66	.....	4,799.93
Paragon Oil Co., Tulsa	.....	2,618	141.18
Pauline Oil & Gas Co., Oklahoma City	.....	.....	4,963.59
Pine, W. B., Okmulgee	.....	Gas	981.77
Pine, W. B., Okmulgee	14,688.28	.....	14,779.89
Pierce, R. H., & Co., Inc.,* Tulsa	.....	.. ..	3,167.70
Pierce, M. T.,* Ardmore	.....	.....	2,683.36
Patterson, L. E.,* Oklahoma City	2,485.61	.....	2,556.64
Pfile, Charles,* Oklahoma City	.....	.....	2,017.47
Phelps, Mrs. Lulu E.,* Oklahoma City	.....	.....	3,666.07
Perkins & Cullum, Wichita Falls, Tex.	8,878.84	.....	8,217.99
Pioneer Petroleum Co., Tulsa	8,698.66	.....	8,063.07
Parrott, Forest, trustee, Oklahoma City	5,315.45	.....	5,337.80
Potts, J. R. and Mable Dale,* Yale	.....	.....	3,438.13
Peerless Oil Prod. Co.,* Tulsa	.....	.....	2,421.68
Peerless Oil Prod. Co., Tulsa	.....	.....	2,095.89
Pueblo Petroleum Co., Tulsa	.....	.....	7,945.81
Petroleum Rights Corp.,* New York, N. Y.	.....	.....	4,851.77
Phillips, Hilton, Shawnee	.....	.....	39,705.00
Peerless Oil & Gas Co.,* Indiana, Pa.	4,962.55	.....	6,078.14
Peerless Oil & Gas Co., Indiana, Pa.	.....	Gas	170.87
Plymouth Drilling Co., Tulsa	7,007.30	.....	7,114.50
Plymouth Drilling Co., Tulsa	.....	C.H. Gas	114.14
Pandem Oil Corp., Wichita Falls, Tex.	5,261.33	.....	6,060.93
Patterson, Leona L.,* Duncan	.....	.....	1,989.96
Price, N. J., and Alpha,* Okemah	.....	.....	2,611.78
Pace, George L., Wichita Falls, Tex.	64,590.91	.....	53,713.89
Pace, George L.,* Wichita Falls, Tex.	2,823.95	.....	2,304.56
Phoenix Oil Co., Pittsburgh, Pa.	.....	.....	12,492.78
Pawhuska Oil & Gas, Bartlesville	.....	35,681	5,254.58
Penn-Ohio Gas Co., Pittsburgh, Pa.	8,638.19	.....	9,100.30
Pouder and Pomeroy, Tulsa	15,305.62	.....	16,719.37
Pouder and Pomeroy, Tulsa	.....	99,689	1,458.28
Precure, George A.,* Choctaw	.....	.....	3,511.01
Probst, George C.,* Tulsa	.....	.....	3,140.07
Palmer, S. T.,* Okemah	.....	.....	5,633.90
Powers, M. F.,* Tulsa	14,987.00	.....	19,257.19
Powers, M. F., and Anna L.,* Tulsa	17,952.00	.....	20,529.90
Pharoah, O. J.,* Henryetta	.....	.....	3,610.94
Patterson, L. E., Oklahoma City	2,485.61	.....	2,556.64
Panther Oil & Gas Co., Oklahoma City	5,456.46	.....	6,229.24
R			
Ramsey Petroleum Corp., Oklahoma City	70,507.79	13,644	61,150.41
Ramsey Petroleum Corp., Okahoma City	.....	31,580	1,639.80
Reliance Oil Co. of Oklahoma, Houston, Tex.	7,875.33	.....	7,532.65
Reliance Oil Co. of Oklahoma, Houston, Tex.	.....	Gas	1,617.55
Reed, Frank H.,* Neosho, Mo.	Oil	.....	15,049.04
Reed, Frank H.,* Neosho, Mo.	.....	Gas	1,139.41
Reed, Frank and Isabella,* Neosho Mo.	Oil	.....	27,235.44
Reed, Frank, and Isabella,* Neosho, Mo.	.....	Gas	2,066.42
Reed, Isabella S.,* Neosho Mo.	.....	.....	8,619.81
Reed, Mrs. Eulamae,* Wewoka	.....	.....	2,020.28
Royalty Corp. of America,* Tulsa	.....	.....	28,454.30
Rex Oil & Gas Co. and Pyramid Oil Co., Winchester, Ky.	10,030.92	.. ..	9,428.20
Regal Oil & Gas, Tulsa	15,680.58	.....	18,584.82
Richards, C. L.,* Tulsa	4,758.27	.....	4,700.13
Reynolds and Unruh, Wichita, Kans.	20,710.00	.....	25,901.68
Reynolds, M. E.,* Oklahoma City	.....	.....	3,918.47
Replogle & Johnston,* Oklahoma City	.....	.....	13,716.56
Rutz, Jake, Oil Co., Morris	7,210.48	.....	7,700.60
Richey, S. M.,* Tulsa	.....	.. ..	3,256.90
Robinson, E. L., Tulsa	8,435.24	.....	8,511 37
Robertson, B. H., Nowata	4,816.72	.....	5,024.04
Reed and Harmon,* Nowata	5,847.90	.....	5,876.34
Reiter-Foster Oil Corp., Tulsa	25,598.78	.....	25,500.34
Reiter-Foster Oil Corp., Tulsa	.....	Gas	287.13
Rogers, Leslie,* Tulsa	2,516.89	.....	3,064.63
Rogers, Leslie,* Tulsa	.....	4,995	430.49
Rogers, Rosa, and Calloway,* Earlsboro	.....	.....	2,998.96
Royalties, Inc.,* Muskogee	.....	.. ..	2,538.94
Richardson, D. A., Oklahoma City	16,120.97	.....	17,551.52
Replogle, Jamie,* Oklahoma City	.....	.. ..	2,823.08
Replogle, D.,* Oklahoma City	.....	.....	3,787.82
Reynolds Oil & Royalty Co., Oklahoma City	6,925.51	.....	7,822.50
Riverland Co., Tulsa	5,666.31	.....	6,791.08
Riverland Co., Tulsa	.....	Gas	164.04
Reserve Petroleum Co., Tulsa	16,989.98	.....	17,841.05
Rogers, B. H.,* Oklahoma City	.....	.....	18,297.17
Rogers Oil & Gas Co.,* Oklahoma City	.....	.....	14,721.67
Royalties Trustee Corp.,* Wilmington, Del.	.....	.....	4,472.00
Rowe, E. M.,* Cyril	23,028.41	.....	19,612.06
Rockland Oil Co., Ardmore	21,886.52	.....	18,624.88
Royalties Management Corp.,* New York City	.....	.....	12,550.33

(Continued on Next Page)

OKLAHOMA GROSS PRODUCTION, FOURTH QUARTER, 1930

Name and address—	Barrels	M. feet	Amount
Ringling, Mabel,* Ardmore	.....	.....	2,346.96
Red Bank Oil Co., Tulsa	31,596.77	.....	32,596.98
Red Bank Oil Co., Tulsa	.....	Gas	878.46
Rogers, Calloway,* Earlsboro	.....	.....	1,690.63
S			
Superior Oil Corp., Tulsa	105,345.11	.....	112,260.85
Superior Oil Corp., Tulsa	.....	207,782	9,081.66
Sinclair Oil & Gas Co., Tulsa	2,749,093.00	.....	3,127,999.56
Sinclair Oil & Gas Co., Tulsa	.....	Gas	92,616.70
Sinclair Oil & Gas Co., Tulsa (suspense)	.....	.....	12,490.14
Skelton-Moore Oil Co., Bartlesville	5,127.53	.....	5,169.74
Slick, Thomas B., estate of, Oklahoma City	480,321.80	.....	551,729.00
Slick, Thomas B., estate of, Oklahoma City	.....	2,357,162	25,442.52
Slick, Thomas B., estate of,* Oklahoma City	20,531.23	.....	23,523.11
Slick, Thomas B., estate of,* Oklahoma City	.....	47,167	2,226.34
Stanolind Crude Oil Purchasing Co. (suspense)	.....	.....	86,963.33
Standard Royalties of Canada, Inc.,* Toronto, Canada	.....	.....	59,276.27
Seminole Royalty Co.,* Oklahoma City	5,238.53	17,586	6,515.76
Stahl, E. S.,* Oklahoma City	.....	.....	5,692.73
Southland Royalty Co.,* Ponca City	Oil	.....	28,019.48
Southland Royalty Co.,* Ponca City	.....	Gas	3,120.36
Schmidt, H. E.,* Columbus, Ohio	.....	.....	3,511.17
Schoenfeld, D. L., Oklahoma City	.....	.....	2,537.85
Snyder, John P., Minneapolis, Minn.	.....	.....	2,299.56
Sykes, C. E.,* Ardmore	.....	.....	1,755.35
Spotts, William L.,* Haskell	.....	.....	2,105.68
Sullivan, G. C., and Mattie,* Tulsa	5,612.93	.....	5,398.80
Siogan, Mrs. Agnes O.,* Falls City, Nebr.	.....	.....	2,211.40
Sangster, Joe B.,* Earlsboro	.....	.....	2,304.70
Spigner, E. P.,* Tatums	.....	.....	7,732.12
Swan, F. P.,* Konawa	.....	.....	2,830.23
Seay, Delbert,* Waurika	.....	.....	4,013.99
Seay, O. W. estate,* Waurika	.....	.....	3,265.59
Seay, Clyde, W. D.,* Oscar	.....	.....	7,153.92
Shaffer, J. C., Inc., Oklahoma City	.....	.....	26,020.54
Shaffer, C. B., Chicago	10,043.10	.....	9,256.64
Shaffer, C. B.,* Chicago	1,834.29	.....	1,589.62
Southwest Production Co., Bristow	.....	Gas	12,623.23
Southwest Gas Utilities Corp. of Oklahoma, Ada	.....	.....	6,233.00
Smith, Elizabeth,* Moore	.....	.....	4,988.98
Smith, Thomas H.,* Denver, Colo.	.....	.....	7,010.08
Smith, N. Bert,* Oklahoma City	.....	.....	4,193.89
Smith, N. Bert, Royalty Trust, Oklahoma City	Oil	.....	43,810.56
Smith, N. Bert, Royalty Trust, Oklahoma City	.....	Gas	1,266.42
Smith, G. J., Tulsa	.....	.....	30,775.99
Skelly Oil Co., Tulsa	606,199.49	.....	658,380.18
Skelly Oil Co.,* Tulsa	6,159.43	.....	6,794.54
Skelly Oil Co., Tulsa	.....	866,707	30,271.22
Schermerhorn Oil Co., Tulsa	.....	.....	8,437.68
Sunray Oil Co., Tulsa	154,211.23	.....	139,278.32
Sunray Oil Co., Tulsa	.....	Gas	10,266.22
Shasta Oil Co., Wichita Falls, Tex.	94,903.73	.....	82,071.35
Shasta Oil Co.,* Wichita Falls, Tex.	2,375.44	.....	2,085.70
Silurian Oil Co., St. Louis, Mo.	.....	Gas	2,386.17
Silurian Oil Co., St. Louis, Mo.	95,794.99	.....	96,278.44
Simpson-Fell Oil Co., Ardmore	14,383.98	.....	13,908.60
Simpson-Fell Oil Co., Ardmore	.....	Gas	121.38
Sturm Drilling Co., Ardmore	8,354.55	.....	8,591.99
Sturm Drilling Co., Ardmore	.....	Gas	65.01
Savoy Oil Co., Tulsa	5,724.44	.....	5,164.21
Savoy Oil Co., Tulsa	.....	Gas	246.02
Smith, C. R., estate of, Ardmore	2,328.25	.....	2,242.82
Smith, C. R., estate of, Ardmore	.....	25,078	2,431.15
Smith, Charles R., Jr., Ardmore	3,873.45	.....	3,719.24
Smith, Charles R., Jr., Ardmore	.....	33,998	3,349.26
Smith, Maris S., Ardmore	4,883.46	.....	4,588.48
Smith, Maris S., Ardmore	.....	45,855	4,560.80
Sunray Oil Corp.,* Ardmore	12,869.31	.....	13,112.71
Sunray Oil Corp., Ardmore	.....	Gas	415.81
Sudik, Vincent,* Oklahoma City	.....	.....	9,650.68
Sterling Trust Corp., trustee for Phoenix Royalties Syndicate, Toronto, Canada	.....	.....	1,720.33
Sterling Trust Corp., trustee for Phoenix Royalties Syndicate,* Toronto, Canada	.....	.....	2,441.44
Simpson, Rose M.,* Tulsa	.....	.....	2,423.60
Shoreline Oil & Gas Co., Tulsa	19,487.37	.....	24,543.63
Sarasota Oil Co.,* Ardmore	2,828.18	.....	2,398.74
Snedden, George W., Tulsa	40,400.33	.....	49,006.72
Schermerhorn-Ardmore Co., Minneapolis, Minn.	61,928.78	Gas	58,623.53
Schermerhorn, J. B., Inc., Minneapolis, Minn.	45,647.03	.....	45,792.05
Schermerhorn, J. B., Inc.,* Minneapolis, Minn.	2,247.02	.....	2,324.26
Sun Set Oil & Gas Co., Freewater, Ore.	.....	.....	6,592.00
Slab Oil Co., Ardmore	7,669.02	.....	9,022.34
Sands Petroleum Corp., Tulsa	8,399.30	.....	10,010.58
Sands Petroleum Corp., Tulsa	.....	Gas	931.38
Shelby Oil & Gas Co., Tulsa	20,994.04	.....	19,351.00
Shelby Oil & Gas Co., Tulsa	.....	Gas	474.33
Shelby Oil & Gas Co.,* Tulsa	3,407.28	.....	4,022.76
Sheridan Oil Co., Tulsa	9,511.87	.....	9,388.93
Sheridan Oil Co., Tulsa	.....	17,889	2,035.48
Sharum, B. E.,* Ripley	.....	.....	2,945.71
Stekoll, Harry, Tulsa	18,030.11	.....	21,085.86
Snowden, Pearl M.,* Philadelphia, Pa.	.....	.....	3,360.54
Shufflin, M. B., Coffeyville, Kans.	.....	.....	9,935.36
Shimp, Ira C.,* Blackwell	.....	.....	2,930.76
Simms Oil Co., Dallas, Tex.	45,429.00	.....	52,500.41
Simms Oil Co., Dallas, Tex.	.....	68,868	2,379.77
Snowden and McSweeney, New York City	41,007.90	.....	41,623.38
Snowden and McSweeney, New York City	.....	19,149	445.61
Selby, J. L., Muskogee	8,222.35	.....	8,525.63
Shell Petroleum Corp., St. Louis, Mo.	609,428.41	.....	670,383.41
Shell Petroleum Corp.	.....	1,431,644	46,622.89
T			
Theimer, B. J.,* Oklahoma City	.....	.....	40,686.11
Taylor, Dr. Joseph,* New York City	.....	.....	1,921.46
The Texas Company, production department, Tulsa	841,846.57	.....	896,201.75
The Texas Company, production department, Tulsa	.....	Gas	67,939.87
The Texas Company, production department,* Tulsa	5,598.60	.....	6,338.62
Tidal Oil Co., Tulsa	397,399.04	.....	394,489.00
Tidal Oil Co., Tulsa	.....	Gas	14,518.72
Tidal Oil Co., Tulsa	6,952.86	.....	6,053.55
Tidal Oil Co.,* Tulsa	7,489.77	.....	7,910.66
Tidal Oil Co.,* Tulsa	.....	Gas	616.60
Templeton, M. E.,* Phoenix, Ariz.	.....	.....	6,950.36
Thompson, L. F.,* Okemah	.....	.....	2,317.45
Truby, M. L., Corp.,* Independence, Kans.	2,814.37	.....	3,433.89
Treveyn Oil Co., Duncan	.....	.....	25,969.19
Tibbens, C. G., Tulsa	29,181.11	.....	43,642.60
Tanner, H. C., and N. M. Tanner,* Oklahoma City	8,182.63	.....	9,126.95
Townsend, T. M., and M. H.,* Oklahoma City	.....	.....	2,502.06
Townsend, M. T.,* Ada	.....	.....	2,460.53
Tri State Royalty Co.,* Tulsa	.....	.....	9,938.86
Turner, H. E., Oklahoma City	.....	.....	15,844.47
Tull, Vida M.,* Oklahoma City	4,348.65	.....	5,522.38
Tomlin, R. E.,* Ada	.....	.....	13,693.40
Trosper Park Royalty Owners,* Oklahoma City	.....	.....	12,819.21
Trosper, Elizabeth Jane,* Oklahoma City	4,135.24	.....	4,606.96
Trosper, L. M.,* Oklahoma City	2,376.31	.....	2,469.42
Trosper, Clarence E.,* Oklahoma City	6,355.68	.....	6,828.19
Thompson, William M.,* Tulsa	3,353.23	.....	3,626.80
Thompson, Roy B.,* Tulsa	3,322.52	.....	3,595.76
Texas Pacific Coal & Oil Co., Thurber, Tex.	39,759.53	.....	37,036.53
Texas Pacific Coal & Oil Co., Thurber, Tex.	.....	Gas	2,972.71
Twin State Oil Co., Tulsa	431,239.13	.....	309,482.53
Twin State Oil Co., Tulsa	.....	Gas	21,244.00
Twin State Oil Co.,* Tulsa	.....	.....	3,503.30
Thlocco Oil Co., Tulsa	7,993.78	.....	9,980.23
Turman Oil Co., Tulsa	230,369.38	.....	250,613.76
Turman Oil Co., Tulsa	.....	188,640	6,591.10
Theimer, Elizabeth,* Oklahoma City	.....	.....	4,729.81
Tulsa Oil Co., Tulsa	.....	.....	5,442.40
Thompson, William M.,* Tulsa	3,353.23	.....	3,626.80
Thompson, Roy B.,* Tulsa	3,322.52	.....	3,595.76
U			
United States Royalties Corp.,* New York City	3,669.27	.....	4,553.24
United Producing Co., Inc., Charleston, W. Va.	1,956.42	.....	2,348.77
Umpleby, J. B.,* Norman	1,693.62	.....	1,953.97
Umpleby, J. B., Norman	.....	Gas	32.79
Utilities Production Corp., Tulsa	.....	1,115,599	48,191.54
Unsell, Mary Jane,* Wichita, Kans.	.....	.....	3,730.36
Voorhees, Leon G.,* Oklahoma City	.....	.....	6,206.07
Unit Holders of No. 1 Ross Oils, Inc., Oklahoma City	35,247.91	.....	30,298.39
V			
Valley Osage Oil Co., Tulsa	15,448.22	.....	15,179.94
Varnum, W. T.,* Shawnee	6,075.49	.....	6,972.59
Varnum, Eliza P.,* Shawnee	4,892.98	.....	5,629.90
Vance, Mary E.,* Tulsa	1,790.08	.....	2,451.43
Vance, S. E.,* Tulsa	1,468.77	.....	2,304.01
Viersen Oil & Gas Co.,* Okmulgee	5,789.62	.....	7,434.38
Viersen, Sam K.,* Okmulgee	2,155.98	.....	2,726.52
Viersen, A. A.,* Okmulgee	18,902.03	.....	23,887.62
Viersen, A. A.,* Okmulgee	.....	Gas	953.96
Van Meter, Phillip L.,* Wichita Kans.	.....	.....	2,310.72
Venmex Oil Co., Wichita Falls, Tex.	24,642.62	.....	22,882.08
Vacuum Oil Co., Houston, Tex.	97,208.58	.....	119,643.61
Vacuum Oil Co., Houston, Tex.	.....	302,488	4,156.11
Vernon Oil & Gas Co., Blackwell	Oil	.....	6,056.49
Vernon Oil & Gas Co., Blackwell	.....	Gas	112.91
Vencel, Alex,* Oklahoma City	.....	.....	12,752.22
Voorhees, Leon G.,* Oklahoma City	.....	.....	6,206.07
W			
Wilcox, H. F., Oil & Gas Co., Tulsa	285,127.69	.....	317,454.66
Wilcox, H. F., Oil & Gas Co., Tulsa	.....	Gas	9,847.12
Wilcox, H. F., Oil & Gas Co., Tulsa (suspense)	.....	.....	2,010.00
Wilcox, H. F., Oil & Gas Co.,* Tulsa	2,235.44	.....	2,704.53
Washington Royalties Co.,* Tulsa	7,846.15	.....	8,933.92
Washington Royalties Co.,* Tulsa	.....	Gas	664.67
Wentz Oil Corp., Ponca City	130,147.84	.....	153,607.58
Wentz Oil Corp.,* Ponca City	.....	269,136	4,998.00
Wentz Oil Corp., Ponca City	617.96	.....	747.93
Wentz Oil Corp.,* Ponca City	.....	.....	1,599.33
Walker, E. A.,* Oklahoma City	.....	.....	10,595.77
Wilson, Benton,* Greenfield, Mo.	.....	.....	2,740.64
Wheeler, John W.,* Oklahoma City	.....	.....	3,266.54
Wise & Jackson, Sapulpa	.....	.....	4,778.20
Walsh Oil Co., Tulsa	5,200.36	.....	5,061.48
Willmott, John W.,* San Diego, Calif.	.....	.....	13,854.95
Western Oklahoma Gas Co., Fort Smith, Ark.	.....	108,649	10,864.90
Watkins, F. E., estate, Waurika	3,347.27	.....	2,713.64
Wilson, Irwin F.,* Wewoka	.....	.....	2,649.26
Wiser Oil Co., Sistersville, W. Va.	85,838.82	.....	83,300.24
Warner-Caldwell Oil Co., Titusville, Pa.	30,967.70	.....	30,383.39
Warner-Caldwell Oil Co., Titusville, Pa.	.....	Gas	729.58
Wrightsmith Oil Co., Oklahoma City	19,656.07	.....	21,618.92
Winona Oil Co. of Delaware, Tulsa	33,362.38	.....	35,379.17
Whitehill Oil Corp.,* Tulsa	15,729.13	.....	15,823.52
Whitehill Oil Corp.,* Tulsa	1,918.62	.....	2,098.83
Wright, J. H., estate, Sapulpa	14,796.04	.....	16,011.41
Wright, J. H., estate, Sapulpa	.....	Gas	965.75
Wood, Roy,* Oklahoma City	.....	.....	8,077.69
Wood Oil Co., Tulsa	14,389.50	.....	17,203.08
Watrous, Ernest,* Shawnee	.....	.....	2,207.42
Westheimer and Daube,* Ardmore	12,199.14	.....	11,079.99
Westheimer and Daube,* Ardmore	.....	Gas	603.68
Westheimer and Daube, Ardmore	85,815.23	.....	84,071.27
Westheimer and Daube, Ardmore	.....	Gas	2,544.74
Weeks, Margaret S., Ardmore	3,873.44	.....	3,719.27
Weeks, Margaret S., Ardmore	.....	33,998	3,349.22
Wolverine Petroleum Co., St. Louis, Mo.	141,597.18	.....	137,972.00
Wolverine Petroleum Co., St. Louis, Mo.	.....	Gas	11,805.67
Wellsville Oil Co., Wellsville, N. Y.	8,157.26	.....	8,109.19
Westland Oil Corp., Tulsa	13,975.29	.....	16,475.89
Westland Oil Corp., Tulsa	.....	Gas	221.73
Wallace, V. E., Okmulgee	.....	.....	5,479.02
Watchorn Oil & Gas Co., Oklahoma City	7,398.59	.....	7,616.71
Whitehill, Howard J., and H. C. Weible, Tulsa	12,347.26	.....	12,296.78
Winkler & McQueen, Duncan	.....	.....	9,608.02
Welsh, John Thomas, estate of, by Jack T. Welsh, New York City	.....	.....	3,238.40
Whipple, Sarah O.,* Montrose, Pa.	.....	.....	3,155.36
Y			
York Petroleum Co.,* Muskogee	.....	.....	4,087.53
Young, L. W.,* Oklahoma City	.....	.....	3,622.80
Z			
Zimmerman, L. W., Chicago, Ill.	17,956.07	1,067	14,067.89

AJAX PIPE LINE CO. STATION NEAR SPRINGFIELD, MO.



Three McIntosh & Seymour Corp. Diesel oil engines.

Texas Gross Production for Fourth Quarter, 1930

Gross receipts tax on crude oil production in Texas, quarter ending December 31, 1930:

A

Name and address—	Barrels	Value
Argus Oil Co., Inc., Brownwood (9-30-30)	227.38	$209.17
Allday Oil Corp., Wichita Falls	319.77	354.38
Ama-Gray Oil Co., Amarillo	2,269.77	2,144.15
Alamo Oil Co., Brownwood	441.00	418.95
Arnold, J. L., et al, Eastland (9-30-30)	517.76	579.90
Amicable Life Insurance Co., Waco	475.00	475.00
Adamson, Peter, Jr., Tulsa, Okla.	358.00	372.64
Ada Belle Oil Co., Batson	19,554.32	19,777.36
Allbritain, F. J., Markley	801.48	976.21
Acorn Oil Co., Beaumont	6,923.72	7,027.72
Arkansas Fuel Oil Co., Shreveport, La.	103,395.00	114,129.09
Arab Gasoline Corp., Eastland	916.96	987.64
Allied Oil & Gas Co., Laredo	123,829.83	97,011.32
A. & P. Production Co., Houston	48,576.40	42,629.95
Alamosa Oil Co., Amarillo	4,453.03	2,922.34
Anchor Oil Producing Co., Dallas (9-30-30)	763.37	1,000.02
Amarillo Oil Co., Amarillo	1,424.44	1,054.09
Atlas Production Co., Burkburnett	1,338.92	1,340.14
Andrews, W. R., et al, Putnam	741.83	792.99
Anderson-Williamson Co. Prop., Fort Worth	107,483.58	68,533.85
Akin & Rayzor, Wichita Falls	11,813.82	11,949.80
Ailes, J. W., Wichita Falls	560.50	403.56
Adams & Lyles, Lockhart	5,662.11	5,322.38
Adams & Lyles, Lockhart	1,583.93	1,520.57
Alaska Petroleum Co., Amarillo	905.93	788.15
Abraham, Earl, Bridgetown	1,356.17	1,012.60
Arrow Head Oil Co., Dallas	1,135.99	1,256.50
Anderson-Drewery Corp., Cisco	2,537.00	2,829.47
Alworth-Stevens-Hild Co., New York, N. Y.	724.62	557.22
Ames, E. W., et al, San Antonio	116.32	122.77
Atkinson & Sandefer Oil Corp., Breckenridge	8,161.43	9,425.51
Abercrombie, J. S., Co., Houston	202,206.42	192,918.49
Art & Taxman, Wichita Falls	847.77	898.61
Argus Oil Co., Brownwood	192.25	153.43
Artex Oil Co., Wichita Falls	992.24	856.90
Anderson-Prichard Oil Corp., Oklahoma City, Okla.	128.60	131.40
All-American Oil & Gas Co., Oklahoma City, Okla.	1,370.96	1,394.51
Amerada Petroleum Corp., Tulsa, Okla.	270,018.59	209,346.74
Arco Oil & Gas Co., Baltimore, Md.	8,043.47	8,010.91
Adams & Prince, Amarillo	15,791.52	11,012.72
Adams & McGahey, Amarillo	12,733.05	11,557.81
Ascot Co., Wichita Falls	1,303.74	1,206.72
Adams, Dr. Walter B., Wichita Falls	309.89	305.23
Arcadia Refining Co., Coleman	15,107.14	16,542.57
Arco Oil Co., Wichita Falls	17,793.23	14,757.52
Arcadia Refining Co., Coleman	1,301.01	1,424.16
Abbott, R. W., Beaumont	1,874.84	1,764.66
Anderson, C. N., trustee, Des Moines, Iowa	848.12	1,003.14
American Maracaibo Co., New York, N. Y.	73,845.62	51,838.95
American Refining Properties, Wichita Falls	39,812.24	31,381.27
Andrews Petroleum Corp., New York, N. Y.	3,836.16	2,838.84
American Refining Properties (WMP), Wichita Falls	6,028.22	5,072.81
American Refining Properties (RMW), Wichita Falls	1,912.72	1,492.00
American Refining Properties (MJB), Wichita Falls	1,895.33	2,227.65
American Refining Properties (NBC), Wichita Falls	1,056.12	857.00
Atlantic Oil Producing Co., Dallas	658,960.08	523,142.82
Arnold, J. L., et al, Eastland	370.34	299.51
Antelope Creek Oil & Gas Co., Amarillo	2,843.10	2,099.71

B

Barkley & Meadows, Wichita Falls (12-31-30)	70,688.29	67,182.57
Barkley & Meadows, Wichita Falls (9-30-30)	74,787.08	97,073.62
Booth, C. H., trustee, "A" lease, Taylor	3,261.45	2,119.94
Booth, C. H., trustee, "B" lease, Taylor	3,616.72	2,350.87
Bohner, C. F., Kansas City, Kans.	140.00	177.55
Butler, J. A., Albany	70.44	64.80
Beams, Drew, Okmulgee, Okla.	2,761.79	2,983.68
Boller, C. W. and Rogers, Wichita Falls (6-30-30)	110,616.88	197,571.00
Boller, C. W. and Rogers, Wichita Falls (6-30-30)	88,564.43	154,098.42
British American Oil & Gas Co., Tulsa, Okla. (3-31-30)	533.92	613.29
British American Oil & Gas Co., Tulsa, Okla. (6-30-30)	796.93	1,029.15
Brittan & Gordon, Strawn	655.26	674.58
Brittan, Ed S., trustee, Strawn	722.86	785.19
Borealis Oil Co., Oklahoma City, Okla.	3,599.48	3,435.98
Burton McKee Oil Corp., Strawn	376.34	378.21
Bluebonnet Petroleum Corp., Somerset	647.65	530.88
Brown, Mrs. Carrie L., et al, Orange	10,122.44	10,516.40
Brown, Dr. E. W., estate, Orange	738.18	738.18
Brown Farm Oil Co., Wichita Falls	1,040.80	1,185.74
Brownlee-Pope Oil Co., Austin	1,599.95	1,806.90
Biggs Oil & Gas Co., McKinney	775.00	873.81
Bartlett Production Co., Rockdale	585.64	598.00
Byrd, W. E., Hull	594.00	594.00
Bashara, M. J., & Sons, Wichita Falls	1,265.70	1,047.59
Big Indian Oil & Development Co., Gainesville	873.14	934.26
Bowman Oil Co., Rockdale	399.60	412.00
Bohner, Crenshaw & Whithill, Burkburnett	5,709.29	5,940.55
Butler & Perkins, Olney	213.11	302.44
Bohner, C. J., Oil Corp., Burkburnett	13,090.81	14,068.34
Bohner, C. J., et al, Burkburnett	3,041.16	3,096.85
Burns, L. T., Wichita Falls	3,917.46	2,546.34
Burns, L. T., Wichita Falls	53,054.24	56,708.05
Bartlett Production Co., Rockdale	585.64	598.00
Beggs, George-Strip, Fort Worth	1,607.34	2,224.95
Boller, C. W., Wichita Falls	13,864.45	13,796.22
Bynum, W. W., estate, Rockdale	868.13	904.34
Bryson Oil & Gas Co., San Angelo	3,217.09	4,047.77
Bailey & Gilliland-Mrs. Fannie Bailey, Wichita Falls	1,239.54	1,312.38
British American Oil Producing Co., Tulsa, Okla.	5,528.85	6,194.50
Boardman & Ulrich, Corsicana	1,555.00	1,321.75
Baker, Mollie B. and Fred. R., Breckenridge	563.00	619.30
Baker, J. F. and H. E., Breckenridge	2,151.00	2,215.53
Baker, J. A. and Mollie B., Breckenridge	5,544.00	6,056.72
Bruce, A. D., Brownwood	286.39	259.95
Braden Co., The, an express trust, Tulsa, Okla.	2,968.24	3,224.29
Baldwin, F. C., et al, Fort Worth	1,214.70	1,301.65
Bailey, Carl B., Wichita Falls	7,035.27	7,596.37
Brownwood Prod. & Ref. Co., Brownwood	1,111.23	1,149.98
Barnsdall Oil Co., Tulsa, Okla.	72,273.59	66,915.84
Brazelton Brothers & Williams, Olney	1,420.41	1,512.96
Bona, Joseph E., Denver, Colo.	.....	3,650.37
Bolin, D. H., trustee, Graham	13,214.72	11,092.96
Bourbon Royalty Co., Dallas	1,269.63	1,383.28
Bourbon Royalty Co., Dallas	1,512.30	1,429.70
Bluebonnet Oil Co., Wichita Falls	563.37	608.95
Briggs, R. F., C. O. Smith and T. C. Steiner, Corsicana	44.32	54.07
Bowers Oil Co., Vernon	970.89	1,010.74
Beard & Hammond Oil Co., Tulsa, Okla.	2,223.72	2,067.41
Badger Oil Co., Amarillo	13,605.17	12,738.42
Bexata Oil Co., San Antonio	1,068.71	919.44
Breeding & Hutson, Rising Star	399.39	466.48
Buttram, Frank, Oklahoma City, Okla.	453.72	499.65
Buttram Petroleum Corp., Oklahoma City, Okla.	21,743.77	26,370.34
Bayless, A. A., Fort Worth	694.77	826.13
Benedum-Trees Oil Co., Pittsburgh, Pa.	6,575.28	7,620.61
Bridwell & Mayfield, Wichita Falls	3,642.02	4,327.90
Bridwell & Heydrick, trustee, Wichita Falls	1,612.39	1,415.72
Bridwell Oil Co., Wichita Falls	115,953.25	103,952.59
Biel, William A., Von Ormy	12.28	12

Name and address—	Barrels	Value
Barbara Oil Co., Chicago, Ill.	1,994.62	2,367.49
Bynum & Palmer, Rockdale	78.76	75.61
Bass & Dillard, Wichita Falls	1,986.43	2,137.19
Barnsley, Foster, Laredo	2,988.12	3,063.03
British American Oil & Gas Co., Tulsa, Okla.	71,853.96	68,089.33
Bearman, J. A., Cisco	6,115.12	5,441.28
Brown, H. L., Fort Worth	16,326.45	14,186.62
Baker & Pardue, Breckenridge	9,812.69	11,012.80
Big State Oil Corp., Houston	1,168.83	1,269.65
Barkley & Crotty, Ranger	3,815.17	4,131.30
Barkley & Conway, Ranger	4,424.44	5,404.63
Barkley, Gholson, et al, Ranger	221.88	211.52
Brown & Guinn, Wichita Falls	386.90	443.47
Black, W. A., Midland	887.49	788.74
Birk, C. E. and C. L. Kelley, Iowa Park	93.87	94.79
Brady Brothers, Minerva	701.12	759.50
Burkburnett Production Oil Trust, Baltimore, Md.	766.51	831.00
Brown & Lickey, Wichita Falls	714.02	905.94
Bell Oil & Gas Co., Tulsa, Okla.	3,722.53	2,475.18
Bashara, J. F. and Sam F., Houston (October and November)	26,567.06	31,896.14
Burke-Greis Oil Co., Tulsa, Okla.	1,073.76	1,325.58
Bonner Co., Wichita Falls	17,743.87	17,706.58
Buchanan, A. A., San Antonio	63,655.81	59,091.66
Brooks & Hanlon, Inc., Tulsa, Okla.	557.58	573.38
Barnes, J. B., Electra	9,664.19	8,990.82
Brannon & Murray, Cisco	1,384.32	1,633.01
Bradstreet, L. G., Co., Fort Worth	24,859.17	26,971.74
Bullington-Clark et al, Wichita Falls	2,514.36	1,946.21
Big Lake Oil Co., Pittsburgh, Pa.	1,359,653.80	1,442,301.47
Black Cat Oil Co., Electra	658.30	715.47
Brazos River Gas Co., Wichita Falls	142.38	184.05
Bazzoon, G. A., Vernon	373.10	350.54
Big Gray Oil & Gas Co., Amarillo	23,511.64	21,731.99
Baker, J. A., Breckenridge (9-30-30)	1,176.76	1,648.23
Baker, J. A., Breckenridge	729.02	698.89
Bartlett, William, & Co., Electra	472.88	530.94
Bratcher, O., Loving (ending August 31, 1930)	8,782.99	12,737.83

C

California Co., The, Dallas	1,530,955.00	1,088,961.59
Cushing Refining & Gasoline Co., Cushing, Okla.	11,063.95	7,517.95
Collier, J. W. and Mabel, Markley, Tex., or Tipton, Okla. (6-30-30)	83.67	92.87
Claggett & Evans, Mirando City (9-30-30)	1,344.23	1,766.22
Claggett & Evans, Mirando City	725.63	943.31
Callihan, George, Albany	699.47	427.97
Conway Brothers and J. F. Champion, Ranger	400.57	355.85
Conway Brothers, Ranger	3,657.10	4,104.89
Callihan, George, and Carter Development Co., Inc., Albany	1,647.58	1,738.55
Clarkson, William, Houston	4,846.03	5,160.71
Camp Oil & Gas Co., Wichita Falls	567.73	605.31
Caruthers Co., San Antonio	1,253.58	1,012.24
Coffield & Hale Oil Co., Rockdale	2,678.41	2,809.51
Canyon Oil & Gas Co., Cross Plains	734.65	797.03
Chalk, Otis, Big Spring	3,106.13	1,848.45
Cuno, Mrs. Bertha, Moran	1,734.46	1,809.69
Chenault, W. L., Amarillo	494.87	494.15
Consolidated Oil Co. of Texas, Wichita Falls	113,966.78	100,025.45
Crown Central Petroleum Corp., Houston	40,455.91	31,580.96
Crown Oil & Refining Co., Houston	16,878.88	15,358.10
Currie Oil Corp., Washington, D. C.	163.53	174.98
Capitol Oil Co., Orange	555.92	555.92
Carey, E. S., et al, Wichita Falls	259.16	242.40
Cardinal Oil Co., San Angelo	81,093.85	40,546.92
Cosden Oil Co., Fort Worth	436,504.85	417,266.57
Cosden Oil Co., Inc., Fort Worth	3,307.69	2,150.08
Cosden Oil Co., Inc., Fort Worth	54,567.61	36,586.53
Cullen, H. R., et al, Houston	6,184.31	5,092.93
Cullen & West Production Co., Houston	17,565.34	20,978.21
Clayton-Key Oil & Gas Co., Amarillo	4,686.00	4,628.76
Craig & Lowrie, Pittsburgh, Pa.	1,178.86	978.21
Cox, Edwin B., Ardmore, Okla.	1,312.21	1,305.07
Cole Petroleum Co., Laredo	14,430.85	11,120.50
Crabb & McNeel, San Angelo	2,910.79	2,667.81
Central Oil Co., Cameron	3,124.93	3,183.70
Conner, Son & Cloughley, Gotebo, Okla.	8,323.44	9,512.37
Coble-Whittenburg, Amarillo	333.68	194.04
Clark, R. R., et al, Wichita Falls	32,900.05	37,485.99
Clark, R. R., Wichita Falls	10,541.56	10,062.57
Coppock & Coleman, Iowa Park	12,763.24	14,447.79
Comet Petroleum Co., Fort Worth	2,134.94	1,477.65
Clear Lake Oil Co., Rockdale	524.96	556.46
Continental Oil Co., Ponca City, Okla.	1,943,980.15	1,605,858.39
Corvette Oil Corp., Fort Worth	7,578.13	3,890.88
Carey, C. W., Wichita Falls	3,562.86	3,901.33
Cashdollar & Snyder, Brownwood	86.33	73.37
Cornhusker Oil Co., Lincoln, Neb.	1,464.28	1,139.77
C. R. & M. Drilling Co., San Antonio	56,082.86	62,546.97
Coline Oil Corp., Oklahoma City, Okla.	2,844.00	3,319.42
Crosbie, J. E., Inc., Tulsa, Okla.	1,993.96	1,323.87
Church & Weekley, Fort Worth	52,627.03	37,162.44
Cal Tex Oil Co., Spokane, Wash.	247.11	197.14
Cable Oil Co., Wichita Falls	4,398.90	4,288.20
Carlin, W. W., Ranger	440.00	484.00
Cooper & Mishler, Wichita Falls	2,480.18	2,659.14
Cooper, G. W., Wichita Falls	3,176.27	3,065.84
Corbett, J. Q. and R. V. Tidwell, Graham	560.57	594.11
Cole, W. C., Wichita Falls	1,257.45	1,347.01
Collins, J. L. & Co., Corsicana	30,935.35	31,031.86
Clem Oil Co., Houston	438.98	321.73
Cosa Oil Co., San Antonio	305.94	357.34
Campbell, Alma, Fort Worth	426.13	441.29
Cockrell-McIlroy Oil Co., Amarillo	133,870.73	113,249.64
Carter, Roy L, Wichita Falls	18,518.03	12,782.51
Chapman, E. L., Fort Worth	375,811.31	244,592.01
Cranfill-Reynolds Co., Houston	543,256.14	516,094.29
Collins & Teddlie, Houston	4,423.73	3,997.88
Cranfill Brothers Oil Co., Wichita Falls	4,683.29	5,092.71
Ceseaux, P. C., Humble	5,963.26	6,105.21
Canary, S. C., et al, Tulsa, Okla.	411.55	403.32
Clark, C. W., Wichita Falls	5,026.24	4,003.26
Campbell, Walter K., Co., Wichita Falls	533.60	614.50
Christie Brothers, Wichita Falls	10,055.43	11,253.66
Chestnut & Smith Corp., Tulsa, Okla.	7,061.09	8,865.98
Cullum, F. P., Wichita Falls	15,742.54	11,799.78
Cosden Oil Co., Fort Worth	109,598.53	103,872.00
Cisco Oil Co., Tulsa, Okla.	18,758.20	18,423.09
Culbertson Co., Wichita Falls	7,080.77	7,791.77
Cosden Oil Co., George N. Moore and Henry Zweifel, receivers, Fort Worth	120,911.32	93,032.74
Cromwell, Carl G., San Angelo	2,542.13	1,964.36
Cromwell, Carl G., San Angelo	7,605.31	5,072.57
Cunningham, J. C., Graham	2,634.34	2,612.99
Cunningham & Lynch, Graham	3,334.61	2,919.78
Cosden, J. S., Inc., Fort Worth	5,728.04	5,534.59
Champlin Refining Co., Enid, Okla.	122,181.20	106,340.15
Champlin Refining Co., Enid, Okla.	1,335,966.70	25,502.87
Corzelius Brothers & Taggart, Eastland	1,983.82	2,167.88
Corzelius Brothers & Taggart, Eastland (June, July, August and September, 1930)	7,441.33	10,977.74
Campbell, R. S., Humble	846.94	816.36
Clark Buffalo Oil Corp., Buffalo, N. Y.	739.04	739.78

(Continued on Next Page)

PLYMOUTH TRADE MARK 1824

SINCE BULL ROPE is subject to great external friction and abrasive action, a proper lubrication of the fibers strengthens and lengthens its life of service.

This, the Plymouth Cordage Company has accomplished by introducing a new "Bronzo" lubricant treatment in the manufacture of Plymouth Manila Bull Rope. This special "Bronzo" lubricant smooths down and lubricates the fibers all through the rope. Friction is thereby greatly lessened—and the rope is made less subject to wear and tear.

Ask for Plymouth "Bronzo" Manila Bull Rope at your nearest Oil Well Supply Company branch store. Also on sale are Plymouth Manila Drilling Lines, Crackers, Cat Lines and Spinning Lines.

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PLYMOUTH
"Bronzo" Manila
Bull Rope
"the rope you can trust"

TEXAS GROSS PRODUCTION, FOURTH QUARTER, 1930

Name and address—	Barrels	Value
Clay, J. D., Houston	2,291.43	2,055.97
Charter Oil Co., Brownwood	5,161.60	5,817.86
Cady, C. C., Moran	243.17	183.75
Cohen, Aaron, Baltimore, Md.	5,193.69	6,078.02
D		
Davis, Caroline A., Somerset	270.65	289.59
Duke, W. R., Wichita Falls	1,241.12	1,054.96
Driscoll, R., estate, Corpus Christi (2-1929 to 9-1930)	145,544.23	126,461.09
Dunlop & Dawson, Ponca City, Okla.	3,057.40	3,226.93
Driscoll, R., estate, Corpus Christi	21,826.34	17,075.75
Dean Oil Co., Burkburnett	250.34	226.80
Dash Production Co., San Antonio	19,207.21	23,432.80
Dunigan Brothers, Breckenridge	907.61	804.15
Davis Oil Corp., Vernon	22,075.52	22,786.72
Davis Oil Corp., Vernon	613.26	585.91
Davis Oil Corp., Vernon	7,323.20	8,128.31
Duho Oil Co., Houston	3,103.29	3,256.34
Developers Oil & Gas Co., Wichita Falls	549.00	626.11
Deutser, B., trustee, Beaumont	1,055.77	1,049.00
Dunaway Brothers, Pampa	8,091.89	8,530.59
Dunaway, J. E., et al, Wichita Falls	2,166.40	1,780.11
Deer Oil Corp., Luling	1,285.07	1,499.67
Dale, Jack B., Wichita Falls	3,739.52	3,821.06
Dunigan Brothers, Pampa	356.33	307.64
Dale & Crawford, Electra	683.39	760.64
Deep Rock Oil Co., Fort Worth	182.75	156.20
Duval Oil Corp., San Antonio	6,209.90	4,657.43
Derby Oil Co., Wichita, Kans.	1,542.80	1,130.96
Derby Oil Co., Wichita, Kans.	6,634.59	6,407.19
Derby & Haines, Wichita, Kans.	3,551.11	2,847.08
Derby, Haines & Williams, Wichita, Kans.	459.79	296.56
Danciger Oil & Refining Co. of Texas, Fort Worth	466,852.77	401,255.62
Dixie Oil Co., Inc., Tulsa, Okla.	92,335.61	58,112.17
Douglas Brothers Oil Co., Electra	1,426.88	1,615.00
Douglas Brothers & Johns, Electra	338.18	359.41
Douglas Production Co., Electra	1,180.88	1,216.33
Dale-Knotts Oil Co., Wichita Falls	252.24	291.26
Daniel Drilling Co., Wichita Falls	3,204.66	3,752.15
Deako Oil Co., San Antonio	8,582.99	7,295.55
Deako Oil Co., San Antonio	6,320.96	5,026.65
Dye & Gillette, Tulsa, Okla.	13,647.39	13,553.96
Deep Rock Oil Co., Fort Worth	8,666.00	5,150.06
Duffield & Howard Oil Co., Tulsa, Okla.	619.41	559.94
Deering, John A., Houston	36,866.76	41,064.76
Dixon Creek Oil Co., Amarillo	78,046.04	65,651.74
Dominion Oil Co., Tulsa, Okla.	487.96	509.66
Dennis, J. S., Moran	1,270.61	1,272.44
Delmar Oil Co., Bartlesville, Okla.	60,063.35	54,239.24
Davis, Caroline A., Somerset	255.48	227.23
Devonian Oil Co., Tulsa, Okla.	20,404.61	19,690.03
Duquesne Oil Corp., Eastland	468.52	461.44
Douglas Oil Co., Tulsa, Okla.	6,068.29	5,215.63
Derosa Oil & Gas Co., Amarillo	27,869.03	25,960.20
Darby Petroleum Corp., Tulsa, Okla.	13,000.00	9,913.82
Dalton, Jack, Oil Co., Fort Worth	974.56	1,065.22
Den Wich Oil Co., Abilene	775.02	845.91
E		
Elrod, Beabout & Sullivan, San Angelo	3,040.38	4,429.96
Ellis & Anderson, San Antonio	62.69	55.97
Ellis & DuBose, Fort Worth	1,277.04	1,052.97
East Batson Oil Co., Batson	15,112.62	14,186.19
Eddleman & Payne, Inc., Wichita Falls	2,905.57	3,297.00
Erlewine, A. J., et al, Wilson, Okla.	1,959.13	2,052.64
Erlewine, A. J., et al, Wilson, Okla. (9-30-30)	236.94	276.87
Empire Gas & Fuel Co. of Maine, Bartlesville, Okla.	496,240.17	480,372.03
Edmondson, J. M., San Antonio	1,101.28	903.07
Eckert & Son, San Antonio	6,065.79	5,776.58
Engel, E. A., Albany	3,576.53	4,095.17
Eckert, F. H., San Antonio	1,410.99	1,341.97
Eastland Oil Co., Fort Worth	40,940.48	33,441.23
Eppenauer, E. L., trustee, Fort Worth	1,379.43	1,529.19
Erie Investments, Ltd., of Texas, Toronto, Canada	324.00	291.60
Ernest Oil Co., Rockdale	270.63	269.41
Eumo Oil Corp., Abilene	4,335.56	4,381.39
Easton, E. S., Wichita Falls	870.61	968.85
Electra Production Co., Inc., Electra	479.00	519.33
Ellis & Lancaster, Beaumont	165.00	148.00
Eddy Oil Co., Beaumont	1,348.38	1,271.73
Elsik & Pomykol, Jr., Brenham	762.00	520.60
Elrod, Beabout & Sullivan, San Angelo	2,476.27	1,547.86
Eubank, R. O. and B. K., Cross Plains	1,833.70	1,907.14
El Rio Oil Co., Amarillo	344.05	272.96
Emerald Oil Co. of Texas, Winfield, Kans.	2,970.76	1,538.85
Easter Oil Corp., Wichita Falls	30,689.31	30,823.61
Estelle Oil Co., Beaumont	560.63	448.50
F		
Finlayson-Harrison et al, Midland (9-30-30)	3,529.08	5,073.49
Farish & Ireland lease, Houston	5,784.77	5,956.71
Frontier Oil Co., San Antonio	8,506.86	6,608.11
Ferguson, W. R., Wichita Falls	637.11	557.98
Falls Production Co., Wichita Falls	2,825.47	3,258.34
Freeman, J. F., Wichita Falls	2,448.99	1,846.26
Freeman-Hampton Oil Corp., Wichita Falls	6,400.61	6,905.63
Fox & Adams, Burkett	8,726.02	8,342.65
Fultz, W. B., et al, Graham	1,727.61	2,112.82
Fleming & Kimbell, Fort Worth	4,027.63	2,906.03
F. H. E. Oil Co., Fort Worth	12,263.39	11,253.10
Franklin, Wirt, Ardmore, Okla.	227.16	219.91
First National Bank, executor of G. W. Mennis estate, Wichita Falls	3,152.35	3,232.41
Faith Oil Corp., Wichita Falls	6,595.31	7,730.18
Fulton, Tom, Wichita Falls	650.18	629.89
Flynn, W. B., Beaumont	4,535.84	4,454.42
Fraser, H. H., Wichita Falls	16,600.76	16,545.89
Fox, Perry, I. and William R. Thorsen, Mertzon	964.98	818.30
Fullerton, W. R., Wichita Falls	1,239.21	1,031.97
Fountain Production Co., Saratoga	1,270.67	876.90
Ferguson & Watson, Electra (9-30-30)	1,081.30	1,546.25
Ferguson & Watson, Electra	969.84	1,067.77
Farlyn Oil Co., Houston	7,625.35	5,139.87
Finston, Mark Special Account, Tulsa, Okla.	9,105.13	8,844.79
French Oil Corp., San Antonio	18,976.73	14,852.84
Four Oil Co., Wichita Falls	901.09	979.84
Fresno Oil Co., Wichita Falls	30,372.39	28,216.33
Fisher, J. A., Wichita Falls	676.26	758.39
Forest Oil Co., trustee account, Luling	4,260.84	3,834.75
Fain, L. B., Rising Star (4-1-30 to 12-31-30)	3,316.72	4,156.33
Farmers State Bank, Burkburnett	695.69	666.78
First National Bank of Wichita Falls, Wichita Falls	64.80	67.60
Fain-McGaha Oil Corp., Wichita Falls	273,389.81	288,226.76
G		
Golding & Cochran, Wichita Falls	32,552.78	32,452.99
G-I Oil Co., Wichita Falls	5,555.10	5,228.41
Guthrie, Cole & Ferguson, Wichita Falls	466.74	442.13
Glenridge Oil Corp., St. Louis, Mo.	3,254.51	3,788.77
Gilbert Co., The, Beaumont	6,212.72	6,253.25
Godfrey, F. L., Enid, Okla. (9-30-30)	52.80	70.64
Godley Oil & Gas Co., Dallas	18,648.10	14,878.79
Gilman & Conway Brothers, Ranger	2,809.52	3,615.28
G. & K. Production Co., Fredericksburg	1,096.89	974.11

(Continued on Next Page)

TEXAS GROSS PRODUCTION, FOURTH QUARTER, 1930

Name and address—	Barrels	Value
Goldsmith, N. D., Olney	5,277.69	5,262.18
Gates-Bacon-Lea, Wichita Falls	4,444.04	4,108.47
Gordon, Ann B., Oil Co., Inc., Dallas	2,833.24	3,471.37
Gunn Production Co., Cross Plains	572.77	667.33
Ginter-Lange Oil Co., Nacogdoches	1,277.11	1,217.05
Ginter-Jones Oil Co., Nacogdoches	397.09	362.39
Gray & Adams, Inc., Gainesville	1,920.32	1,373.00
Gibson Oil Corp., Amarillo	26,211.94	19,550.62
Gordon & Morris, Breckenridge	1,204.00	1,521.98
Gaither Production Co., Rockdale	665.62	702.46
Grassroots Oil Corp., Fort Worth	1,292.00	1,589.33
Gillman Brothers, Amarillo	881.15	810.88
Granite Oil & Gas Co., Ridgway, Colo.	359.15	385.84
Gladis Oil Co., Saratoga	2,563.49	2,148.78
Gates Oil Co., Ardmore, Okla.	2,419.92	2,665.06
Gorsuch Oil Co., Abilene	2,102.85	2,305.37
Glover & Wall, Vernon	512.83	515.40
Gordon Oil Co. of Texas, Logan, Ohio	76.92	101.91
Graham, W. T., Cisco	233.57	232.12
Graham & Lash, Cisco	62.73	78.82
Grayce Oil Co., Wichita Falls	16,893.62	17,496.65
Green, W. J., Wichita Falls	1,886.71	2,017.16
Gallagher & Lawson, Cisco	345.78	338.45
Golden West Oil Co., San Antonio	19,982.96	15,943.96
Group No. 1 Oil Corp., Fort Worth	720,024.19	777,040.04
Galvez Oil Corp., Tulsa, Okla.	3,072.99	3,369.27
Gulf Production Co., Houston	6,767,930.56	5,586,285.04
Goodwin, P. B., et al, Breckenridge	284.06	266.14
Goodwin, P. B., trustee, Breckenridge	1,911.05	1,292.28
Gatlin Oil Co., San Antonio	730.09	650.33
Gardner, Wilson & McCaldin, Wichita Falls	815.29	902.34
Grayburg Oil Co., San Antonio	157,234.79	116,667.58
Grayback Development Corp., Wichita Falls	9,995.54	10,424.77
Gwynn, P. F., Wichita Falls	15,729.62	11,191.74
Gwynn-Boyd Drilling Co., Wichita Falls	1,070.55	1,333.15
Gwynn, P. F., Wichita Falls	1,230.95	1,110.81
Gunn Production Co. (R. C. Williamson), Fort Worth	364.75	422.36
Gates Oil Co., San Antonio	2,209.83	2,224.80
Graham, Charles, Myra	754.40	520.53
Grisham-Hunter Corp., Abilene	2,649.50	2,782.97
Gilman, R. F. and J. L. McMurray, Cisco	13,672.72	15,316.65
Glass Brothers, Rosebud	608.07	630.65
Gilliland, C. W., Wichita Falls	1,416.39	1,567.49
Gilliland-Rosser Oil Co., Wichita Falls	908.38	812.00
Golding, Dudley S., Wichita Falls	20,921.69	16,512.55
Grady, D. (T. W. Roberts lease), Electra	254.11	223.63
Grady, D., fee, Electra	420.73	467.97
Grady, D. (T. W. Roberts lease), Electra (9-30-30)	21.72	22.26
Grady, D., fee, Electra (9-30-30)	166.04	239.93
Gillette, C. W., Tulsa, Okla.	345.83	416.23
Glasscock Brothers, Pettus	3,370.95	3,787.42
Gandy & Peyton Oil Corp., Corsicana	1,698.00	1,684.30
Graham & Harrison, South Bend	4,767.45	5,420.92
H		
Humble Oil & Refining Co., Houston	6,437,292.07	6,186,527.58
Heidrich, E. C., Jr., Amarillo	3,112.21	2,568.71
Hynes, F. P., San Antonio (4-1 to 9-30-30)	1,330.26	1,905.91
Harris, Jodie P., Albany (3-31-30)	4,132.15	4,902.16
Hendrick, August, Moran	168.56	136.60
Hickey, T. J., et al, Corsicana	60.68	69.92
Hoffman, P. L., Cisco (9-30-30)	5,182.45	1,959.81
Harrell, J. T., et al, Wichita Falls (9-30-30)	46,903.21	29,536.62
Hadlock Oil Corp., El Paso	695.90	553.51
Hankamer, Earl C., & Co., Sour Lake	208.98	199.21
Hawkins, W. L., Wichita Falls	2,834.10	3,104.40
Hambleton, George, San Antonio	406.02	358.50
Hardy Oil Co., Wichita Falls	1,456.82	1,189.19
Hunter Oil Corp., Chicago, Ill.	22,941.51	25,723.79
Hart, J. R., Baird	224.22	219.74
Home Oil & Gas Co., Inc., Albany	1,316.50	1,287.70
Hamill & Hamill, Bay City	6,516.55	5,084.78
Hamilton, W. L., Bridgetown	816.06	903.34
Howard, Duffield & Berlin, Tulsa, Okla.	888.81	858.11
Hickory Oil & Gas Corp., Fort Worth	9,116.42	10,392.13
Hamilton & Martin, Wichita Falls	802.40	809.27
Hoffman & Page Co., Eastland	12,917.00	14,678.37
Harrison Oil Co., Houston	88,848.66	114,412.81
Hyde Production Co., Houston	3,892.76	4,476.67
Hyde, George, Houston	3,551.90	3,551.90
Howard Petroleum Corp., Tulsa, Okla.	849.39	761.14
Hope Oil & Gas Co., Fort Worth	8,762.34	8,600.33
Harrell, J. T., et al, Wichita Falls	433,216.97	269,976.79
Hitchman & Howard, Inc., San Antonio	1,748.91	1,613.45
Houston Gulf Gas Co., Houston	6,115.46	4,751.91
Hanlon Gasoline Co., Tulsa, Okla.	1,396.85	1,472.78
Hughes, J. K., Oil Co., Mexia	15,405.03	15,914.01
Hammon Oil Co., Smithport, Pa. (9-30-30)	488.00	612.44
Hammon Oil Co., Smithport, Pa.	343.00	325.85
Hefley, McIntosh & Thomas, Cameron	583.78	595.68
Hoffman, P. L., Cisco	4,693.70	4,824.29
H. & H. Drilling Co., Seminole, Okla.	627.44	502.27
Hyde & James, Albany	614.93	657.87
Hemby, J. M., Electra	793.04	827.64
Hedges, F. M., Wichita Falls	246.81	276.83
Hamilton, Walter R., trustee, H. L. Hamilton estate, San Antonio	3,761.24	3,845.05
Howard County Oil Corp., Big Spring and Pettus	26,236.20	19,171.83
Haskell, Frank, Tulsa, Okla.	1,723.94	1,616.25
Herrogan Oil Corp., Pampa	11,477.12	9,941.63
Herring, S. C., Brownwood	659.00	820.07
Hawley, J. A., guardian estate, Ottawa, Ontario, Canada	188.77	196.67
Holmes Brothers, Amarillo	16,539.09	17,527.73
Holmes, Hill, Seibold & Holmes, Amarillo	8,401.39	8,789.31
Holmes, W. H. and W. W., Amarillo	2,404.06	2,529.98
Humphreys Brothers, Inc., Houston	1,086.39	1,187.54
Humphreys Brothers, Houston	368,431.34	376,534.22
Hyer, Fred, Fort Worth	12,246.95	8,782.79
Hemisphere Oil Corp., New York, N. Y.	16,951.72	16,279.68
Harris & Simons, Tulsa, Okla.	4,230.17	2,858.85
Harper Petroleum Corp., Bryson	12,478.70	14,077.76
Holder, F. W. and J. B. Gordon, Breckenridge (9-30-30)	366.18	416.36
Holder, F. W. and J. B. Gordon, Breckenridge	280.72	248.22
Hinson, G. D. and R. V. Tidwell, Graham	5,255.78	5,934.78
Holcombe, Thomas, Wichita Falls	1,381.79	1,158.71
Horn, T. W., Houston	315.35	329.99
Hobbs Ferguson & Neeley et al, Tulsa, Okla.	888.84	888.84
H-Y Oil Co., Inc., Fort Worth	14,068.88	14,424.30
Helvetia Oil Co., San Antonio	10,549.62	9,127.27
Hynes, F. P., et al, San Antonio	2,194.71	2,348.33
Hines, Harry, Wichita Falls	2,105.38	1,904.32
Hobbs Oil Co., Tulsa, Okla.	1,142.49	1,274.16
Hardie, J. M., & Co., Sour Lake	76.44	76.44
Holmes & Huey, Borger	2,460.88	2,067.14
Herbert Oil Co. of Texas, Fort Worth	4,862.07	5,389.86
Huber, J. M., Petroleum Co., Borger	40,855.00	25,861.22
H. B. J. Oil & Gas Trust, Baltimore, Md.	1,689.18	1,832.11
Harwell, E. P., Tulsa, Okla.	901.85	1,021.74
Hammon, W. H., Wichita Falls	21,410.23	25,424.73
Hammon & Heyser, Wichita Falls	9,570.75	10,173.01
Hamilton, W. B., Wichita Falls	18,061.53	14,638.62
Holbrook & Woods, Wichita Falls	5,352.10	4,323.08
Hill & Dowell, Batson	9,465.58	9,551.01
Halmack Oil Co., Dallas	136.62	153.68
Hoppes, W. T., Burkburnett	33.96	36.33
Hoppes, W. T., Burkburnett	419.35	431.06

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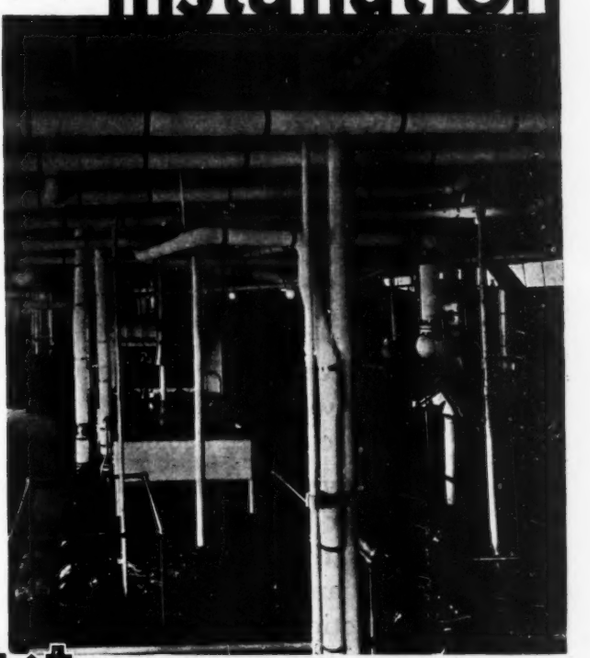

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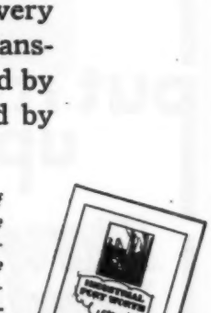

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24 RAIL OUTLETS

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Oil and Gas Division
FORT WORTH CHAMBER OF COMMERCE

TEXAS GROSS PRODUCTION, FOURTH QUARTER, 1930

Name and address—	Barrels	Value
Houston Production Co., Houston	41,466.94	44,434.88
Hamon, Jake L., Ardmore, Okla.	22,231.82	25,116.17
Hoffman & McKibben, Cisco	718.27	941.35
Hoffman, P. L., Cisco (5-1-30 to 9-30-30)	7,664.87	9,982.52
Hoffman & McKibben, Cisco (1-1-27 to 12-31-30)	14,834.26	21,179.12
Harrell, J. T., Wichita Falls	1,321.07	1,504.42
Hedrick-Camp Drilling Co., Wichita Falls	9,811.66	8,254.09
Heydrick, L. C., Wichita Falls (9-30-30)	12,155.35	16,327.92
Hoffman, P. L., Cisco	1,070.58	1,095.46
Heydrick, L. C., Wichita Falls	5,203.84	7,627.35
Hynes, F. P., et al, San Antonio	465.01	553.36
Houghland Production Co., Dallas	1,648.00	1,406.75
Houston Oil Co. of Texas et al, Houston	518,469.70	450,184.59
Hunter, I. F., Wichita Falls	24,467.42	27,600.61
I		
Infield Petroleum Co., Austin	380.50	323.91
Ingram, J. A., Shawnee, Okla.	422.89	375.23
J		
Jones, O. P., and C. J. Oates, Amarillo	987.00	883.20
Jones, J. A., Moran	186.38	199.41
Jones, W. A., Minerva	1,627.55	1,606.05
Jonray Oil Co., San Antonio	1,759.45	1,469.90
Jackson, T. H., Sipe Springs	29.29	26.07
Jones, Edwin M., San Antonio	71,751.98	62,107.23
Julian, C. C., Oil & Royalties Co. et al, Oklahoma City, Okla.	17,184.25	13,945.66
Julian, C. C., Oil & Royalties Co. and Darby Petroleum Co., Oklahoma City, Okla.	10,877.23	8,213.52
James, Tom, Albany	5,041.52	5,362.76
Janellen Oil Co., Tulsa, Okla.	37.81	37.81
Justin Oil Corp. et al, Wichita Falls	6,242.88	6,411.02
Jones, J. E., Wichita Falls	1,952.27	1,670.04
Johnson Brothers, San Antonio	5,015.61	4,584.32
Judson Oil Co., Tulsa, Okla.	6,294.40	6,895.04
Jackson, J. S., trustee, Sour Lake	2,661.51	2,657.12
Julia Oil Co., Sour Lake	3,090.64	3,108.74
Jason Oil & Gas Co., Inc., Houston (9-30-30)	79.78	102.91
Jason Oil & Gas Co., Inc., Houston (6-30-30)	159.10	210.80
Jacob Oil & Gas Co., Graham	1,216.30	1,509.68
K		
Kleinfelder, B. F., Breckenridge	260.97	285.62
Kimbell, G. T. and John L. Bostic, Burkburnett	4,589.04	5,047.94
Kerr, T. P., Corsicana	512.69	541.52
Knox, D. M., Graham	2,665.42	3,241.93
Kimmell & Woofter, Wichita Falls	4,345.71	4,188.93
Kent, G. C., Corsicana	14,107.78	13,875.97
Kurz Oil Co., Somerset	444.62	345.84
Karona Oil Co., Refugio	6,089.98	4,842.88
Kuhlemeier-Kleiner Oil Co., Cisco	1,545.81	1,760.80
Kemrow Co., Wooster, Ohio	13,060.18	12,409.39
Keystone Production Co. of Texas, Fort Worth	2,668.66	3,148.74
Kiser & Fleming, Albany	5,669.66	3,428.94
Kokomo Petroleum Co., Gorman	168.77	173.99
Kay, A. W., receiver, Graham	618.52	671.64
Kay, A. W., et al, Graham	3,849.04	4,612.03
Kleiner, Charles J., Cisco	20,256.84	20,550.87
Koenig, Max W., Oakland, Calif.	16,093.75	12,539.01
Kelly, George L., Wichita Falls	533.49	586.14
Kidney-Kamon et al, Fort Worth	1,912.78	2,383.92
Kavanaugh Petroleum Co., Houston	3,121.44	3,261.54
Kahle, Gracey & Diver, Bridgeport, Ill	2,091.44	1,495.15
Knotts, Nona A., Wichita Falls	560.66	632.55
Kaufman, L., San Antonio	236.09	181.15
Kendrick, P. S., Albany	2,797.86	2,717.92
Kewanee Oil & Gas Co., Titusville, Pa.	146,835.76	155,587.69
King, R. A., trustee, Wichita Falls	830.43	622.83
King & Daniel, Wichita Falls	5,887.45	5,281.01
Kistler, Frank E., & Co., San Antonio	3,514.37	2,314.45
Killam, O. W., Laredo	278,385.38	216,385.42
Kolp, C. F., Electra	16,182.93	17,046.32
Kate Bell Oil Co., The, Dallas	571.58	564.12
Keck Investment Co., Los Angeles, Calif.	4,879.94	3,499.40
Kirby Petroleum Co., Houston	132,165.07	92,194.30
Keller, J. E., Iowa Park (9-30-30)	238.58	335.72
Keller, J. E., Iowa Park	215.00	227.71
Kisk Oil Co., Wichita Falls	646.15	542.95
Keener Oil & Gas Co. of Texas, Tulsa, Okla.	3,329.53	3,482.72
King Royalty Co., Wichita Falls	127,561.89	120,438.93
L		
Larcro Gas & Petroleum Co., Refugio	59,618.50	41,136.76
Lomax, Thornton, Jr., Wichita Falls	2,002.31	1,525.84
Lackey, W. G., Co., Tulsa, Okla.	1,490.23	1,648.63
Lake View Oil Co., Sour Lake	10,506.30	10,697.93
Lesh & McCall, Nocona	12,892.45	8,698.26
Lesh, Kilcrease & Co., Nocona	1,447.83	1,077.89
Lewis, J. E., et al, Eastland	917.34	1,000.18
Luling Oil & Gas Co., San Antonio	37,011.67	28,930.83
Lewis, J. E., & Co., Eastland	2,053.49	2,369.81
Little, Wm., Breckenridge	156.42	143.89
Long, Roy, Oil Co., Navasota	1,651.17	1,759.51
Ledger Oil & Gas Co., Brownwood	617.66	677.03
Lefors Petroleum Co., Inc., Lefors	25,100.84	24,004.97
Lockhart & Co., Los Angeles, Calif.	76,803.66	67,222.44
Lido Oil Co. and McGinley Corp., Wichita Falls and Fort Worth	15,606.08	14,707.10
Layne, L. A., Houston (9-30-30)	1,316.00	1,513.40
Layne, L. A., Houston (6-30-30)	2,787.00	3,065.70
Layne, L. A., Houston	4,338.00	4,511.52
Lowenstein Oil Co., Rockdale	856.34	971.83
Lytle, C. F., Mexia	8,413.36	8,492.12
Loggie & Arendt Oil Co., Albany	2,306.00	2,201.00
Lion Oil Refining Co., El Dorado, Ark.	525,183.65	355,847.63
Lake Graham Oil Co., Houston	2,529.47	2,592.66
Lindsay, R. W., Drilling Co., Graham	104.08	114.48
Lindsay, R. W., Drilling Co., Graham	249.39	264.35
Linedo Oil Co., Lincoln, Neb.	726.99	545.24
Lee, Homer, Wichita Falls	13,027.06	13,368.53
Lewis Production Co., Pittsburgh, Pa.	21,317.23	22,231.84
Lone Star Gas Co., Dallas	37,868.00	46,938.36
Lee & Wilson, Houston	7,072.43	6,357.78
Lee & Scott, Inc., Houston	1,786.67	1,786.67
Lack Royalty & Oil Co., Fort Worth	3,885.34	4,727.96
Last Chance Gas Co., Pampa	283.22	241.23
Lawson, Eugene B., Tulsa, Okla.	32,671.02	34,148.42
Landreth Production Corp., Fort Worth	203,272.17	151,815.24
Len-Cook Oil Co., Electra	451.21	482.78
Len-Cook Oil Co., Electra (9-30-30)	373.54	534.15
Lowe, W. E., trustee, De Leon	110.53	95.89
Letwin & Lippitt, Breckenridge	10,238.62	11,023.91
Langford Oil Co., Inc., Wichita Falls	1,123.44	1,032.19
Lowe, Delaney & Carter, De Leon	1,632.18	1,589.37
Leonard, George, Somerset	913.65	720.10
Leonard Oil Co., Somerset	171.68	132.19
Lebow, C. H., Tulsa, Okla.	1,310.97	1,344.04
Louisiana Oil Refining Corp., Shreveport, La.	344,731.95	339,725.59
Long, C. B., et al, Wichita Falls	196.31	176.68
Little Flower Oil Co., Sour Lake	353.17	357.12
Lesh, John L., & Co., Nocona	3,815.44	2,610.48
Leiser-Rochmill Production Co., Inc., Fort Worth	1,688.02	1,932.16
Lanning, Mrs. R. A., Wichita Falls (9-30-30)	68,884.41	103,542.95
Lela Oil & Gas Co., Amarillo	304.75	161.52
LaSalle Petroleum Co., Tulsa, Okla.	3,523.56	3,616.09
Long, L. A., Graham	2,719.43	3,243.38

(Continued on Next Page)

TEXAS GROSS PRODUCTION, FOURTH QUARTER, 1930

Name and address—	Barrels	Value
Mc		
McMan Oil & Gas Co. (P. A. Chapman Est. Int.), Tulsa, Okla.	10,258.35	10,774.44
McHugh, G. E., Graham (9-30-30)	199.42	260.35
McDaniel, D. B., Houston	30,208.35	30,047.21
McAlbert Oil Co., Inc., Houston	120,674.20	119,796.97
McCarty Oil Co., Wichita Falls (9-30-30)	696.59	945.55
McCheaney, Nancy, Olney	3,758.09	3,473.61
McNallen & Griffin, Tulsa, Okla.	5,334.86	5,731.34
McCarter, R. C., Rising Star	977.68	1,094.45
McClure Eddington, Wichita Falls	161.67	98.98
McCutchen, C. E., Wichita Falls	213.79	200.11
McCormick & Noack Oil Co., Rockdale	71.26	66.27
McMan Oil & Gas Co., Tulsa, Okla.	993,951.06	609,757.16
McNamara Oil Co., Beaumont	2,423.65	2,372.94
McCarty Oil Co., Wichita Falls	69,570.88	79,219.54
McLean, Marrs, Beaumont	38,850.21	28,405.62
McFall, J. M., Wichita Falls	555.82	578.04
McCutchen, C. E., trustee, Wichita Falls	2,319.50	2,598.84
McMurray, Root & Rhodes, Eastland	656.00	912.00
McIlroy Oil Co., Amarillo	32,512.86	16,959.55
McDaniel Oil Corp., Cisco	4,217.36	5,003.90
McLester Oil Co., Eastland	8,840.43	11,115.67
McMurray, J. L., et al, Cisco	1,590.26	1,910.92
McDonald & Campbell, Dallas	3,410.29	3,821.82
McKanna, Inc., Wichita Falls	5,657.53	8,885.84
McCrary, E. W., Tulsa, Okla.	4,145.54	4,255.81
McJunkin, Florence T., et al, Tulsa, Okla.	532.90	661.59
McGraw Oil Co., Tulsa, Okla.	442.98	513.13
McGinley Corp., The, Fort Worth	3,901.52	2,105.44
McBride, W. C., Inc., St. Louis, Mo.	5,672.47	4,883.63
M		
Magnolia Petroleum Co., Dallas	2,508,687.17	2,192,153.19
Maxwell, J. C., Fort Worth	37,029.23	26,957.47
Morgan, Ray, et al, Fort Worth	540.60	832.72
Marnet Oil & Gas Co., Tulsa, Okla.	4,851.62	5,089.65
Magee, R. B., Wichita Falls	919.29	993.93
Meredith & Gant, Wichita Falls	2,192.32	2,061.76
Metzgar Oil Co., Cisco (9-30-30)	2,414.20	2,590.85
Martex Oil Co., San Antonio (1-1-27 to 9-30-30)	68,952.16	67,234.05
Minor Oil Co., The, Beaumont	8,293.15	8,164.61
M-C-H Oil Co., Albany (9-30-30)	538.30	631.73
Mancill, R. W., Cisco	39.52	32.01
Mills & Garitty, Corsicana	2,313.06	1,976.10
Martin, Drake & Jones, Houston (9-30-30)	17,246.61	19,833.59
Menke, John G., Wichita Falls	801.73	913.50
Moore, N. A., Eastland	813.99	863.93
Macknold Co., San Antonio	186.60	146.59
Martin, N. H., Wichita Falls	12,300.13	11,196.35
Martin & Hamilton, Wichita Falls	2,583.32	2,617.02
Medio Oil Co., San Antonio	763.28	604.85
Madden, E. B., Olney	13,883.07	14,236.11
Madden & Hunt, Olney (9-30-30)	10,714.36	10,413.51
Mount & Lee, Inc., Wichita Falls	1,336.59	1,393.51
Minerva Petroleum Co., Minerva	798.87	840.40
Mendenhall Oil Co., Cisco	962.66	1,172.76
Milham Corp. of Texas, Fort Worth	1,359.82	1,513.30
M-C-H Oil Co., Albany (12-31-30)	1,425.59	1,174.26
Mordyan Petroleum Co., Pampa	24,449.17	24,416.88
Midwest Exploration Co., Tulsa, Okla.	132,989.64	123,316.70
Midland Oil Co., Fort Worth	312.48	314.72
Major, A. W., Laredo	1,663.23	1,304.13
Minnehoma Oil & Gas Co., Tulsa, Okla.	603.68	427.71
Medina Oil & Gas Assn., San Antonio	131.77	101.47
M. & V. Oil Co., Wichita Falls	2,828.09	2,486.45
Madison Oil & Gas Co., Electra	3,188.56	3,366.57
Mitcham, G. P., Cisco	941.92	903.82
Maxwell, J. C., Fort Worth (additional tax 12-31-30)	84,946.43	58,863.01
Montgomery-Rea-Montgomery, Sedwick	1,181.68	1,292.00
Moody Corp., Houston	510,561.68	442,049.89
Moody-Seagraves Producing Co., San Antonio	579,452.14	578,170.50
Maun, Floyd, Graham	1,532.29	1,743.61
Moore, F. L., trustee, Tulsa, Okla.	1,784.14	1,917.50
Merrick & Belcher, Wichita Falls	5,122.74	5,983.84
Moss & Urschel, Dallas	11,854.58	11,790.66
Moss, Urschel & Keys, Dallas	5,173.44	5,425.72
Mayberry, C. R., Co., Laredo	1,909.58	1,476.29
Murchison Oil Co., Dallas	83,147.96	60,552.56
Millikin, L. L., Burkburnett	294.99	252.76
Merrick & Bristow, Ardmore, Okla.	66,722.71	38,845.75
Merrick & Lamb, Ardmore, Okla.	28,487.25	21,607.70
Merrick, John F., Wichita Falls	378.32	359.38
Mills Bennett Production Co., Houston	351,280.96	360,275.41
Marts, E. R., et al, Dallas	30,186.77	20,829.04
Meredith, J. D., Moran	2,988.59	2,705.15
Merrick & Goldsmith, Wichita Falls	3,434.72	3,733.99
Massie, J. H., Wichita Falls	41,686.64	38,399.70
Mecon Oil Co., Liberty	2,785.00	2,786.00
Meridian Petroleum Corp., Tulsa, Okla.	4,331.43	4,323.12
Moran Co., The, Wichita Falls	10,750.26	9,391.75
Marshall, George S., Laredo	3,154.84	2,366.13
Marine Corp., Dallas	676.86	508.70
Mid-Texas Petroleum Co., Oklahoma City, Okla.	12,289.62	14,049.89
Midwest & Gulf Co. of Texas (Trust estate), Tulsa, Okla.	1,395.80	1,155.05
Minntex Oil Corp., Wichita Falls	679.91	618.13
Mid-Continent Petroleum Corp., Tulsa, Okla.	11,840.32	13,238.46
Mid-Kansas Oil & Gas Co., Findlay, Ohio	4,341,411.18	3,093,027.41
Mozzie Oil Corp., Eastland	966.86	989.89
Mueller, Alvin P. (receiver for D. D. Baker, et al), Seguin	57.145.14	27,415.39
Mues & MacDermott, Fort Worth	325.23	356.78
MacDermott, W. F., Fort Worth	460.06	495.52
N		
Newport and Ohio Petroleum Co., Newport, N. Y.	472.76	502.88
Navarro Oil Co., Houston	170,149.30	172,970.89
Newton & Lillie, reported by Keen & Wolf Oil Co., Shreveport, La.	17,200.11	17,476.03
National Oil Co., San Antonio	610.85	477.51
Nordan & Morris, Laredo	978.05	753.68
Nix & Dale, Wichita Falls	787.50	826.55
Nabob Oil & Gas Co., Amarillo	13,678.71	13,331.70
Nash, Windfohr & Perry, Austin	47,464.79	53,011.52
Noack & Lanning-Phillips, Rockdale	81.63	75.92
Noack Oil Co., Rockdale	1,282.41	1,414.30
Noack & Lanning-Shelton, Rockdale	235.55	239.55
Newton-Palmer Oil Co., Rockdale	366.01	372.10
North Fork Oil Co., Amarillo	3,362.36	2,808.20
Number Nine Oil Corp., Tulsa, Okla.	2,359.93	2,563.13
Nunn-Stubblefield Oil Co., Amarillo (12-31-30)	19,062.87	18,258.72
Nunn-Stubblefield Oil Co., Amarillo (9-30-30)	16,963.24	22,581.71
Nutt & Gates, Wichita Falls	2,198.94	2,537.88
Nash & Windfohr Oil Corp., Graham	36,496.50	43,488.57
O		
O. & A. Oil Co., Laredo	4,154.09	3,531.37
Ocean Oil & Refining Co., El Paso	699.79	706.80
Oasis Oil Co., Wichita Falls	113.61	108.56
Onsen, Mamie, Kansas City, Mo.	1,043.21	1,703.54
Owenwood Pool No. 3, J. W. Robins, Fort Worth	3,836.28	3,975.79
Oil Investment Co., Wichita Falls	1,368.32	1,421.08
Oriental Oil Co., Dallas	346.08	354.21
Olney Oil & Refining Co., Wichita Falls	135.77	125.33
O'Neil, John, Wichita Falls	11,523.80	12,720.32
O. & A. Oil Co., Laredo	3,094.95	2,335.85

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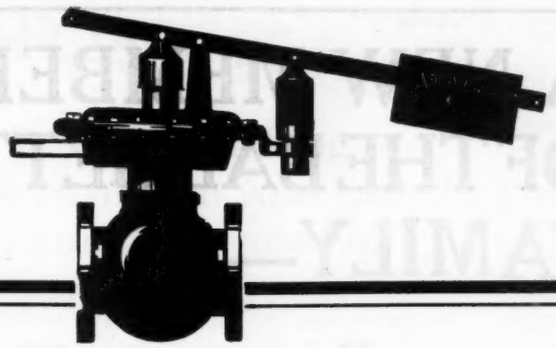

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The Davis Casinghead Gas Regulator is used for collecting oil well vapors by practically every prominent producer in this country . . . which speaks well for its reliability and efficiency.

This Regulator is a sensitive automatic control valve which may be set to maintain any given vacuum on the well regardless of the vacuum in the main gathering line. Its design is simple and rugged, making it suitable for use in exposed positions.

A counterweighted diaphragm, with balanced disc, is used in this regulator. There is no packing box. An oil dash pot insures smooth, steady action. Large diaphragm area permits highly sensitive action regardless of the flow velocity. Interior parts are sulphur-resistant.

Catalog 11, describing this and other Davis Automatic Valve Specialties, sent on request.

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Sales Engineers
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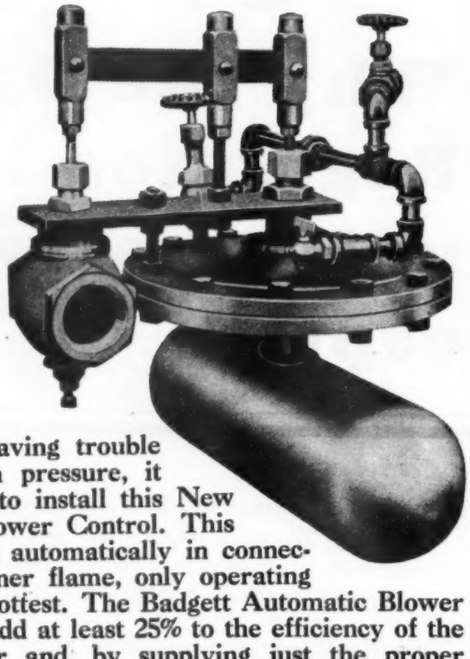

Like all other Badgett products, the New Automatic Blower Control has proved its value in helping eliminate boiler troubles.

If you are having trouble holding steam pressure, it will pay you to install this New Automatic Blower Control. This control works automatically in connection with burner flame, only operating when fire is hottest. The Badgett Automatic Blower Control will add at least 25% to the efficiency of the average boiler and, by supplying just the proper amount of draft at the proper time, serves to minimize flue leakage, reduces boiler troubles and adds to fuel economy.

The Control works equally as well with hand-fired boilers as with gas regulated boilers. It works easily with any make of burner or regulator.

Conforming with our usual policy on all Badgett boiler equipment, we guarantee the control to save you money, to improve the efficiency of burner and boiler and to give you perfect satisfaction in every way. Order one or more of the new Automatic Blower Controls by telephone or wire today!

Southern Drilling Co., Oklahoma City
John Mabee, Tulsa
Loffland Bros., Tulsa
J. Henry, Duncan, Okla.
Summit Drilling Co., Tulsa
G. J. Beard, Duncan, Okla.
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Herman Wagener, Oklahoma City
Byers Drilling Co., Oklahoma City
A & B Drilling Co., Oklahoma City
Capitol Drilling Co., Oklahoma City
Prince & Prince, Electra, Texas
Clark & Cowden, Duncan, Okla.
Independent Oil Co., Oklahoma City
G. E. Gilberth, Oklahoma City
Golden & Cochran, Wink, Texas
Haynes Drilling Co., Wink, Texas
Murphy & Graham, Seminole, Okla.
Steinberg & Yerkee, Seminole, Okla.
Fain-McGaha, Wichita Falls, Texas
Alleson & Clevinger, Seminole, Okla.
Winkler & McQueen, Duncan, Okla.
Reynold Drilling Co., Seminole, Okla.
Manahan Drilling Co., Seminole, Okla.
Herndon Drilling Co., Seminole, Okla.
Hartman & Hamilton, Seminole, Okla.

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BADGETT STEAM LUBRICATOR COMPANY
CHICKASHA, OKLAHOMA

TEXAS GROSS PRODUCTION, FOURTH QUARTER, 1930

Name and address—	Barrels	Value
Omilak Oil Co., Spokane, Wash.	165.62	137.25
Oldom, William P, Iowa Park	567.72	619.36
Olean Petroleum Co., Bristow, Okla.	13,081.30	9,636.90
Owen-Sloan Oil Co., Forsen	36,247.68	22,452.31
Orange Petroleum Corp., Orangefield	25,570.77	25,944.35
Ohio Somerset Oil Co., The, Cleveland, Ohio	1,194.58	947.77
Oklahoma Co. of Texas (formerly George J. Biles), Tulsa, Okla.	3,391.72	3,368.36
Onsen, M., Kansas City, Mo.	832.35	984.32
Ocean Oil & Refining Co., El Paso	704.74	563.79
P		
Patten Production Co., Taylor	3,355.32	2,180.96
Production Supply & Tool Co., The, Marietta, Ohio	16,047.61	16,897.49
Palm, F. N., et al, Albany	889.40	759.76
Porterfield, R. R., Graham	5,259.84	5,811.06
Pansota Oil Co., Amarillo (12-31-30)	3,783.92	3,006.91
Pansota Oil Co., Amarillo (9-30-30)	2,734.01	2,949.79
Progressive Production Co., Kansas City, Mo. (9-30-30)	1,004.49	1,433.55
Palm, F. N., et al, Albany (9-30-30)	1,255.45	1,343.32
Phillips Petroleum Co., Bartlesville, Okla.	513,584.28	429,675.85
Phillips Petroleum Co., Bartlesville, Okla.	1,353.06	1,167.19
Phillips Petroleum Co., Bartlesville, Okla.	3,978.85	3,210.90
Phillips Petroleum Co., Bartlesville, Okla.	547,995.79	532,079.60
Phillips Petroleum Co., Bartlesville, Okla.	10,774.13	12,771.02
Phillips Petroleum Co., Bartlesville, Okla.	11,851.08	13,972.63
Phillips Petroleum Co., Bartlesville, Okla.	703.83	810.01
Phillips Petroleum Co., Bartlesville, Okla.	8,104.06	9,262.88
Phillips Petroleum Co., Bartlesville, Okla.	28,837.53	32,223.80
Phillips Petroleum Co., Bartlesville, Okla.	5,754.02	6,402.82
Phillips Petroleum Co., Bartlesville, Okla.	11,298.17	12,772.78
Phillips Petroleum Co., Bartlesville, Okla.	933.23	1,062.21
Phillips Petroleum Co., Bartlesville, Okla.	40,690.47	45,312.15
Phillips Petroleum Co., Bartlesville, Okla.	157,788.86	159,370.95
Phillips Petroleum Co., Bartlesville, Okla.	172,410.86	120,186.69
Phillips Petroleum Co., Bartlesville, Okla.	43,416.43	30,332.15
Phillips Petroleum Co., Bartlesville, Okla.	22,471.63	20,197.03
Phillips Petroleum Co., Bartlesville, Okla.	27,081.32	17,300.44
Phillips Petroleum Co., Bartlesville, Okla.	62,508.28	41,621.10
Phillips Petroleum Co., Bartlesville, Okla.	88,235.16	93,435.43
Petroleum Producers Co., Wichita Falls	80,200.90	79,143.09
Price, E. W., San Antonio	4,618.81	3,464.11
Perkins & Cullum, Wichita Falls	135,176.25	121,672.23
Putnam Supply Co. & McGee, Putnam	415.27	407.60
Putnam Oil Co., Tulsa, Okla.	31,754.23	34,487.81
Plymouth Oil Co., Pittsburgh, Pa.	77,709.10	56,821.07
Pitzer & West, Breckenridge	13,920.58	17,173.47
Pace, George L., Wichita Falls	18,804.69	20,704.12
Piper, L. E., trustee, Vernon	1,755.55	1,976.91
Powell, J. L., et al, Wichita Falls	356.50	378.94
Permian Oil Co. and Gibson & Johnson, Inc., Eastland	3,384.38	4,206.13
Pearson Oil Co., San Antonio	480.11	480.11
Palo Puro Oil Co., Amarillo	4,176.89	2,088.50
Pivoto, M. E., Sour Lake	7,162.76	7,102.27
Pollard, W. E. & C. E., Pampa	3,801.56	3,563.62
Preston Oil & Gas Co., Brownwood	185.22	181.52
Pure Oil Co., The, Chicago, Ill.	2,121,237.77	2,094,959.63
Pure Oil Co., The, Chicago, Ill.	534,223.22	518,320.23
Py-Tex Oil Co., Brownwood	487.09	544.20
Prechel, Walter, Wichita Falls	493.92	570.78
Portland Drilling Corp., Wichita Falls	604.38	650.70
Price-Russell & Co., Ranger	3,231.46	3,706.86
Panhandle & Santa Fe Ry. Co., Wichita, Kans.	5,755.00	2,877.50
Powers Production Co., Houston	2,690.70	2,060.92
Pandem Oil Corp., Wichita Falls	21,241.15	16,981.13
Pioneer Oil, Gas & Refining Co., Somerset	998.43	915.06
Pettit Oil Corp., Trees, La.	1,371.17	1,656.74
Peckham, F. W., Stamford	1,871.00	1,834.22
Proctor, George, Wichita Falls	15,721.01	17,490.70
Pemeta Oil Co., Fort Worth	3,085.40	3,374.62
Peery, Thomas H., Wichita Falls	1,825.14	2,129.96
Piney Oil & Gas Co., New York, N. Y	4,984.36	3,546.45
Pois, M., et al, Wichita Falls	2,596.74	2,923.55
Pois, M., trustee, Wichita Falls	84.08	98.60
Pois, Fine & Schulz, Wichita Falls	476.72	547.23
Producers & Refiners Corp. of Texas, Independence, Kans.	5,689.01	5,360.99
Prairie Oil & Gas Co., The, Independence, Kans.	949,196.08	842,893.62
Primrose Oil Co., Sour Lake	1,216.99	1,268.79
Poor Boy Oil Co., Rockdale	308.14	314.65
Penn Oil Co., Dallas	14,393.75	12,577.07
Pilkerton, F. L., Burkburnett	966.91	770.53
Perkins & Snider lease, Wichita Falls	5,043.07	4,514.63
Pecos Crude Oil Purchasing Co., San Angelo	2,133.96	750.46
Paraffine Oil Co., The, Houston	11,843.33	11,757.87
Powell, T. O., Cross Plains	123.38	123.19
Philp Brothers, Beaumont	3,290.34	3,308.97
Progressive Production Co., Kansas City, Mo. (12-31-30)	819.90	908.84
Paggi Bros. Oil Co., Beaumont	7,442.26	7,391.54
Paggi, Charles, & Co., Beaumont	479.51	460.74
Phair, F. L., & L. W. Wright, Houston	345.55	215.25
Pace & Ward, Breckenridge	1,076.22	1,365.01
Pace & Grant, Wichita Falls	10,016.20	11,517.78
Poole, B. O., Batson	2,214.69	2,241.47
Producers Drilling Co., Wichita Falls	1,513.26	1,518.92
Pearson, W. O., Prop., Corpus Christi (9-30-30)	63,768.83	71,774.82
Producers Oil Co., Tulsa, Okla. (12-31-30)	64,795.83	62,551.80
Producers Oil Co., Tulsa, Okla. (9-30-30)	5,403.70	7,148.06
Phillips, J. R., Amarillo	2,220.36	1,616.32
Panhandle Refining Co., Wichita Falls	130,292.72	133,313.49
Palmer, Freddie, Oil Co., Rockdale	141.98	159.99
Pace, George L. (acct. F. F. Wilson), Wichita Falls (9-30-30)	3,289.60	4,695.91
Pace, George L. (acct. F. F. Wilson), Wichita Falls (12-31-30)	10,016.20	11,517.78
Pinto Oil Co., Mineral Wells (12-31-30)	103.12	115.49
Pinto Oil Co., Mineral Wells (9-30-30)	175.43	194.72
Proctor Oil Co., Wichita Falls	14,094.30	19,875.44
Petroleum Investment Co., Wichita Falls	3,388.12	3,766.79
Q		
Quinn, J. W., et al, Eastland	1,894.15	2,243.41
Quincy Oil Co., Vernon	153.47	156.30
R		
Roeser & Pendleton, Inc., Fort Worth	146,668.19	167,567.86
Rhett-Wilder et al, Rockdale (9-30-30)	5,429.18	4,072.32
Rhett-Wilder et al, Rockdale	432.48	292.03
Rhett-Wilder et al, Rockdale (12-31-30)	5,617.86	3,738.95
Reclamation Co., The, Fort Worth	4,070.33	4,284.62
Rock Island Oil Co., Amarillo (3-31-30)	527.21	622.18
Rock Island Oil Co., Amarillo (6-30-30)	800.05	802.58
Rock Island Oil Co., Amarillo (9-30-30)	522.90	548.47
Rycade Oil Corp., Houston	20,154.45	20,344.80
Robinson, J. B., Sour Lake	169.80	195.27
Red River Oil Co., Tulsa, Okla.	25,527.86	27,902.52
Ramming, R. W., Wichita Falls	411.60	475.65
Ramming, Staley & Ramming, Wichita Falls	530.58	563.52
Ramming, W. F., Wichita Falls	128.76	140.22
Robinson, Arthur D., Dallas	6,055.61	5,700.58
Ramsel, W. T., Oil Co., Rockdale	1,534.76	1,575.57
Rex-Tex Oil Co., Brownwood	487.09	544.20
Ruby Oil Co., Minerva	155.50	162.19
Rockdale Junior Oil Co., Rockdale	203.29	219.92
Rountree, White & Kemp, Rockdale	479.06	488.00
Reed, W. M., Breckenridge	1,038.12	1,035.43
Reed, W. M., Breckenridge	65.28	58.10
Richardson & Kelsey, Fort Worth	63,153.31	46,748.48

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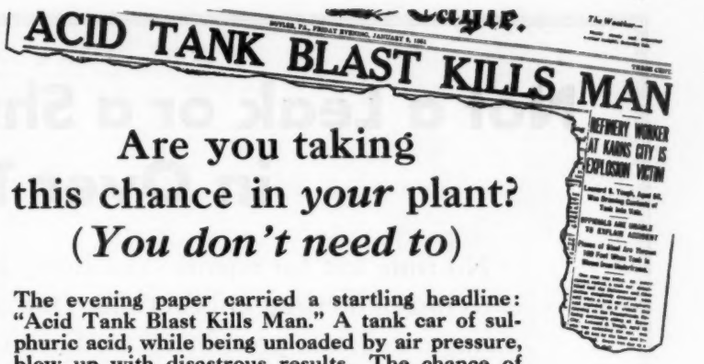
TEXAS GROSS PRODUCTION, FOURTH QUARTER, 1930

Name and address—	Barrels	Value
Rex Petroleum Corp., Vinton, La.	16,929.27	17,611.45
Royalty Oil Corp., F. S. Preston, receiver, Brownwood	60.96	50.34
Rancho Oil Co., Fort Worth	7,981.58	7,955.38
Rio Bravo Oil Co., Houston	561,430.03	596,796.29
Ruthada Oil Co., for H. L. Sturm, Ardmore, Okla.	5,825.86	4,531.00
Rubsam & Hunter, Wichita Falls	5,851.30	5,312.64
Riner & Bailey, Wichita Falls	28,110.91	25,880.15
Riner & Omohundro, Wichita Falls	8,471.65	9,459.24
Reiter-Foster Oil Corp., Tulsa, Okla.	8,174.83	10,213.56
Rowe, J. G., Wichita Falls	2,239.61	2,525.08
Reno Oil Co., Sistersville, W. Va.	39,381.94	42,265.85
Riggs & Oliphant, Graham	7,755.22	8,366.55
Riggs, E. R., Graham	62,643.17	49,047.05
Reed, Crenshaw & Glass, Nowata, Okla.	7,685.45	6,897.47
Randado Oil Corp., Oklahoma City, Okla.	16,135.94	12,377.94
Roth & Faurot Oil & Gas Co., The, Independence, Kans.	2,875.05	3,818.84
Reeder & Scarborough, Wichita Falls	2,148.80	3,490.08
Ranell Oil Co., Oklahoma City, Okla.	3,668.01	3,595.86
Ruyle Farm & Oil Co., Wichita Falls	6,481.84	6,833.78
Robertson, R. R., Wichita Falls	2,751.68	2,733.43
Royal Producing Co., The, Houston	3,944.78	3,944.78
Rentex Oil Co., San Antonio	6,872.16	6,187.77
Russell & Wilson, Wichita Falls	4,489.28	4,146.35
Rock Creek Oil Corp., Amarillo	3,032.00	1,864.75
Red Bank Oil Co., Tulsa, Okla.	4,510.82	5,231.04
Root Drilling Co., Eastland	2,452.00	2,855.00
Root & Fehl, Eastland	4,767.00	5,112.00
Root, C. M., Eastland	6,984.00	8,084.00
Root, Rhodes, Gilman & McMurray, Eastland	4,240.00	4,915.00
Root & Rhodes, Eastland	3,791.00	4,218.00
Richard & Kohlman, Iowa Park	478.00	413.00
Reeder, R. S., et al, Wichita Falls	761.51	748.04
Rockwell, J. A., & Co., Warren, Pa.	1,894.02	1,986.76
Ryan Consolidated Petroleum Corp., Tulsa, Okla	53,314.40	53,683.58
Ruthada Oil Co., Oklahoma City, Okla.	17,186.03	14,183.13
Rhodes, Highers & Christie, Breckenridge	141.68	128.36
Rhodes & Highers, Breckenridge	3,777.86	4,152.25
Rathke Oil Co., Wichita Falls	22,657.35	20,301.64
Republic Production Co., Houston	512,847.37	451,421.49
Robinson, O. D., Pittsburgh, Pa.	1,635.84	1,479.20
Rockdale Oil Co., Rockdale	49.67	49.67
Rochmill, Henry, trustee, Fort Worth	842.16	1,041.68
Refugio Oil Corp., Refugio	14,626.66	11,482.55
Rhett-Wilder et al (Southern Production Co.), Rockdale (12-31-30)	5,617.86	3,738.95
Rhett-Wilder et al, Rockdale (12-31-30)	432.48	292.03
Rush, Anderson & Moor, Big Spring	20,492.24	18,531.70
S		
Southwest Royalty Co., Wichita Falls	11,125.81	8,402.89
Syndicate Oil Corp., Rochester, N. Y.	875.14	1,082.86
Shell Petroleum Corp., St. Louis, Mo.	3,661,708.85	1,157,074.90
Scarborough, W. A., Burkburnett	933.18	976.85
Stein, H., Ranger	403.87	485.88
Surf Oil Co., Abilene (3-31-30)	3,677.95	4,603.31
Surf Oil Co., Abilene (6-30-30)	3,344.79	4,403.40
Surf Oil Co., Abilene (12-31-30)	3,083.54	4,095.46
Staley, J. A., Wichita Falls	906.20	958.96
Shoup, O. H., Jr., Colorado Springs, Colo. (12-31-30)	1,271.80	1,406.83
Shoup, O. H., Jr., Colorado Springs, Colo. (9-30-30)	1,434.07	1,969.97
Shackelford Oil Co., Ranger	7,215.03	10,121.45
Swearingen, W. R., et al, San Antonio	1,093.63	1,334.24
Strawn & Fisher, Electra (9-30-30)	989.30	1,279.64
Sedwick & Webb, Albany	37.00	31.45
Southern Drilling & Production Co., Bay City	20,437.13	22,425.83
Stephens Oil Co., Sour Lake	491.17	432.65
Stepp & Keister, Knoxville	236.00	276.08
Schlicher Oil Co., Beaumont	173.24	199.23
Sand Creek Oil Co., Amarillo	1,610.51	1,421.79
Supreme Oil Co., Orange	2,010.05	2,073.14
Stratton, Ed. F., Pioneer	293.74	307.35
Smith, Mrs. James L., Amarillo	1,434.87	1,306.66
Smith, Levi, Texon	259.18	342.54
Smith, Levi & Fred Hyer, Texon	394.36	477.99
Smith, Levi & J. C. Shaffer, Texon	71.57	76.58
Smith, Levi et al, Texon	9,728.15	12,631.89
Smith & Ash, Wichita, Kans.	14,866.51	16,005.99
Somerset Crude Oil & Refining Co., Somerset	2,484.62	2,091.71
Somerset Oil Co., Somerset	933.76	782.43
Shankle Newton Oil & Gas Co., Laredo	91,877.00	71,471.93
Simmons, T. K., Tulsa, Okla.	730.02	749.02
Strelsky, Joe, & Hefley, Rockdale	174.60	197.08
Stratton, G., Waco	80,925.50	58,037.91
Skinner, E. W., Saratoga	4,233.60	4,118.65
Swanner, John L., Wichita Falls	1,380.09	1,477.40
South Shore Oil Co., Houston	5,407.40	4,328.88
South Texas Petroleum Co., Houston	118,196.80	150,543.32
Star Drilling Co., Wichita Falls	7,675.12	8,818.08
Saratoga Oil Co., Wichita Falls	670.94	741.63
Shappell Oil Co., Wichita Falls	41,715.64	42,005.43
Stevail, E. C., & Son, Graham	3,065.80	3,897.43
Speed, C. D., Corsicana	236.23	249.71
Scott, S. M., Wichita Falls	1,753.50	1,996.79
Shattuck, Mrs. Nellie S., Dallas	2,708.94	2,905.21
Schermerhorn-Winton Co., Minneapolis, Minn.	60,474.24	43,874.32
Standard Oil Land & Leasing Co., Electra	211.13	238.47
Slicker, Homer, Cisco	843.42	889.76
Smith & McDannald, Electra (12-31-30)	1,535.16	1,551.60
Smith & McDannald, Electra (9-30-30)	3,511.77	4,596.09
Sessions, I. P., Rockdale	426.23	420.46
Smith, McIntosh & Thomas (Colter lease), Cameron	1,172.34	1,233.87
Smith, McIntosh & Thomas (Henry lease), Cameron	553.18	548.04
Smith, W. B., Eastland	405.76	445.02
Simms Oil Co., Dallas	922,417.84	684,317.55
Spencer, R. H., & Co., Burkburnett	213.24	182.79
Sheffield Oil Co., Houston	5,098.94	4,453.39
Sircovich, A., & Mrs. F. M. Thomas, Houston	358.45	256.16
Schulz & Weaver, Wichita Falls	7,560.77	5,945.42
Stroube & Stroube, Corsicana	79,201.79	67,824.36
Schermerhorn Oil Co., Tulsa, Okla.	122,446.39	78,338.25
Snowden & McSweeney Co., New York, N. Y.	51,575.80	55,617.53
Staniforth, M., Wichita Falls	1,437.84	1,710.61
Southern Petroleum Exploration, Inc., Sistersville, W. Va.	38,363.07	34,493.93
S. R. & C. Oil Corp., San Antonio	130,820.85	110,514.48
Sequoia Oil Co., Fort Worth	73,514.60	49,714.13
Sequoia Oil Co., Fort Worth	1,483.94	960.74
Simpson, O. H., Fort Worth	673.86	601.60
Summit Oil & Refining Co., Amarillo	309.13	256.22
Schaffner, E. N., et al, Cross Plains	931.93	843.89
Smith, E. L., Oil Co., Inc., Mexia	106,453.16	95,765.74
Sinclair Oil & Gas Co., Houston	316,707.63	322,596.80
Swearingen, W. R., et al, San Antonio	1,604.03	1,539.77
Simpson-Fell Oil Co. et al, Ardmore, Okla.	10,056.51	8,394.24
Spring Creek Oil Co., Amarillo	1,818.77	1,538.44
Swearingen Oil Co., San Antonio	3,213.15	3,083.77
Selby Oil & Gas Co., Tulsa, Okla.	6,016.81	7,274.61
Stella Oil Co., Beaumont	14,189.39	12,925.64
Sandefer-Atkinson-Daniel Oil Corp., Breckenridge	2,989.51	3,643.35
Sink, Joel, Corsicana	216.00	224.00
Salado Oil Co., San Antonio	1,477.39	1,405.54
Sinclair Oil & Gas Co., Tulsa, Okla.	93,397.89	101,251.23
Southern Crude Oil Purchasing Co., Fort Worth	1,776,679.65	1,209,656.27
Sullivan, M. J., Kansas City Mo.	268.21	226.42
Superior Oil Producing Co., Tulsa, Okla.	567.09	624.63

(Continued on Next Page)



Are you taking this chance in *your* plant?
(*You don't need to*)

The evening paper carried a startling headline: "Acid Tank Blast Kills Man." A tank car of sulphuric acid, while being unloaded by air pressure, blew up with disastrous results. The chance of such an accident at your refinery is eliminated by Duriron unloading equipment—acid-resistant, self-priming pump, valves and pipe. Resisting corrosion and abrasion, Duriron equipment gives greatest safety with economy. Write for details.

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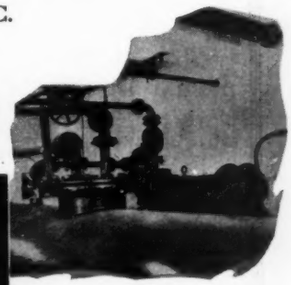
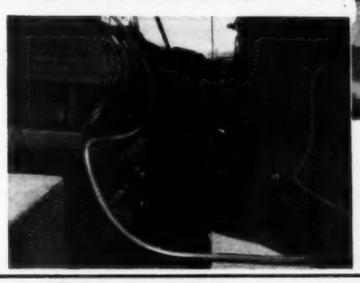
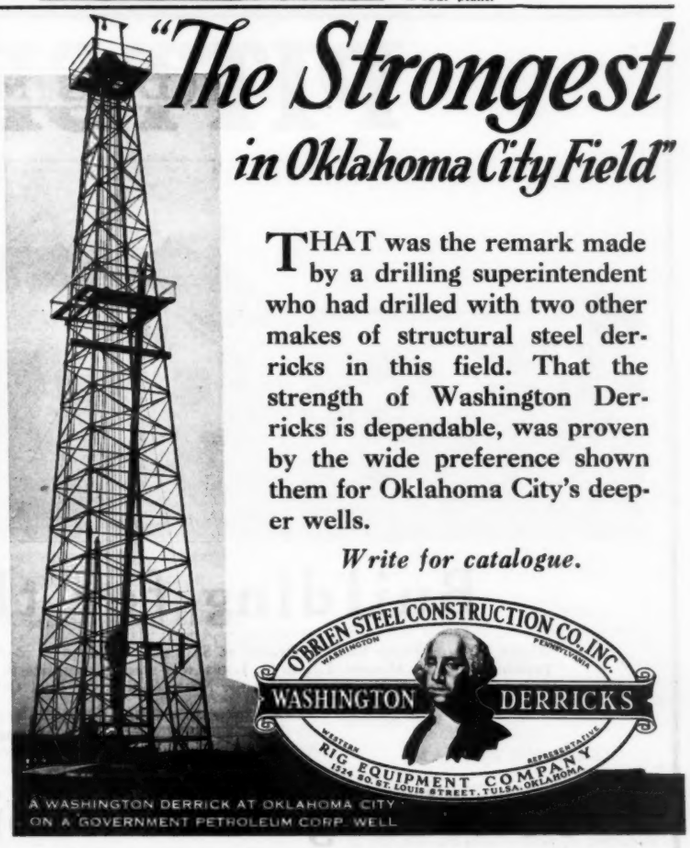




A Safe Way to Unload Acid

Here is illustrated the approved, safe method for acid tank car unloading. Duriron corrosion-resistant pump installation draws off the acid without air pressure and consequent hazard of water collecting to cause fuming. It will remove one chance of accident in your plant.



"The Strongest in Oklahoma City Field"

THAT was the remark made by a drilling superintendent who had drilled with two other makes of structural steel derricks in this field. That the strength of Washington Derricks is dependable, was proven by the wide preference shown them for Oklahoma City's deeper wells.

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WESTERN REPRESENTATIVE RIG EQUIPMENT COMPANY 1224 N.W. ST. LOUIS STREET, TULSA, OKLAHOMA

O'Brien Steel Construction Company, Inc.
Washington, Penna.
Western Representative:
RIG EQUIPMENT COMPANY, 1224 N. W. 33rd St., Oklahoma City, Okla.

Not a Leak or a Shut-Down for repairs in Over Two Years

No time lost for repairs—absolutely dependable in performance. That is the record of Sterling Oil Sections. One outstanding example of performance is a single coil in a prominent modern refinery,* which condenses and cools 3000 barrels of gasoline daily, in addition to steam and fixed gases, cooling the stream to within 5 degrees of the water temperature. They have not had a leak or a shut-down for repairs since they installed Sterling Sections, more than two years ago. This is one experience—we can tell you of many others.

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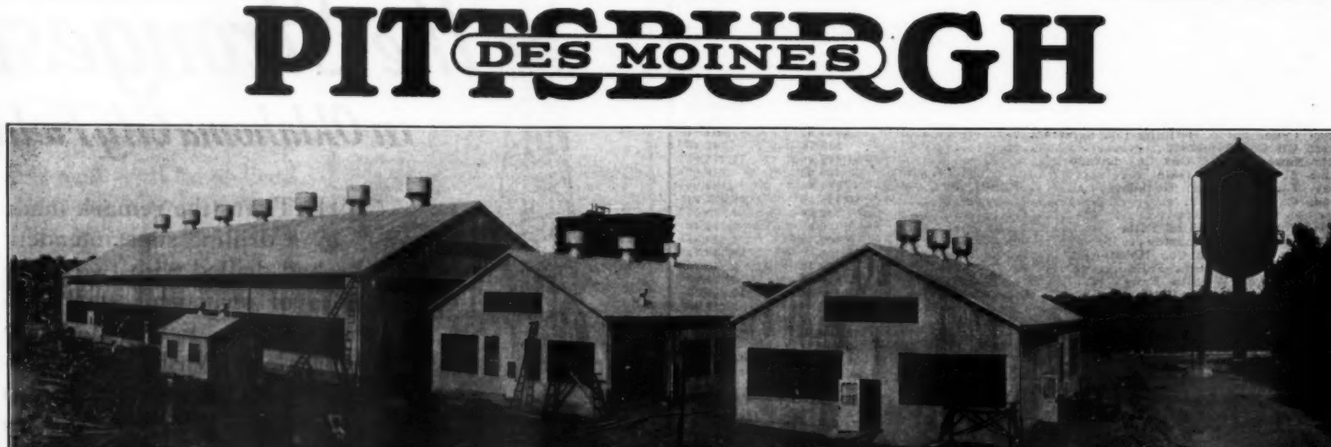


Building for the Gas Industry

Above Booster Pump Station, located at St. Louis, Mo., on a 22-inch gasoline line from Monroe, La., to St. Louis, was erected complete in 90 days by "Pittsburgh-Des Moines" for the Mississippi River Fuel Corp.

Three similar booster stations of five buildings each were also erected by PDM at Perryville, La., Glendale, Ark., and West Point, Ark.

A compressor building (66'6"x196'), an auxiliary building and a warehouse (each 40'x68'), a regulator building (12'x20'), and a pump house (16'x36') comprise each station. A PDM Elevated Water Tank can be seen at the right.

Pittsburgh-Des Moines Steel Company

13 Neville Island, Pittsburgh, Pa. | 1225 Praetorian Bldg., Dallas, Texas | 915 Tuttle St., Des Moines, Ia.

New York | Atlanta | Chicago | Seattle | San Francisco

TEXAS GROSS PRODUCTION, FOURTH QUARTER, 1930

Name and address—	Barrels	Value
Sprague Oil Co., Ardmore, Okla.	13,034.33	7,057.49
Sherman Oil & Gas Co., Sherman	669.00	363.13
Scott & Walker, Albany	1,853.50	2,160.48
S. & W. Oil Co., Amarillo	6,767.44	3,608.61
Stekoll, Harry, Tulsa, Okla.	26,849.97	24,062.15
Slick, Thomas B., estate, deceased, Oklahoma City, Okla.	29,043.45	33,100.90
Skelly Oil Co., Tulsa, Okla.	563,316.14	439,353.28
Saigh, N. A., San Antonio	986.38	956.55
Schoolfield, R. E., Oklahoma City, Okla.	211.66	267.66
Shasta Oil Co., Wichita Falls	751.91	794.33
Stoop, J. P., Ranger	217.32	195.72
Shertzer Brothers, Dewey, Okla.	4,666.26	5,272.44
Stock, H. L., Cisco	2,459.97	2,692.10
Scott & Nance, Graham	2,425.63	2,832.59
Scott & Britton, Graham	219.61	249.77
Seybert Brothers, Mooringsport, La.	1,953.13	2,337.97
Schaffner-Wilson et al, Pampa	1,230.47	1,407.67
Southern Oil & Production Co., Fort Worth	987.97	1,056.62
St. Marys Oil & Gas Co., St. Marys, W. Va.	43,642.01	39,217.50
Sedwick Oil Co., Tulsa, Okla.	9,145.42	9,493.60
Sheldon, C. P., Electra	7,589.55	7,559.23
Schlaffke & Blair, Electra	9,801.67	9,962.13
States Oil Corp., Eastland	45,568.03	50,026.01
Storey-Friebelle-Duffey Oil Co., Winston-Salem, N. C.	5,059.76	3,681.12
Storey-Friebelle-Duffey Oil Co., Winston-Salem, N. C.	27,796.47	19,136.52
Senter, E. G., Jr., Dallas	387.62	494.71
Sipe Springs Oil Co., Tulsa, Okla.	4,581.43	4,918.58
Sheldon, W. J., Electra (9-30-30)	3,514.82	5,187.46
Sheldon, W. J., Electra (12-30-30)	3,077.68	3,449.54
Skia-Tex Petroleum Co., Amarillo	17,085.67	15,223.76
Sun Oil Co., Dallas	1,782,715.30	1,753,989.37
Shaw Oil Co., Wichita Falls	38,321.99	36,967.64
Sunray Oil Co., Tulsa, Okla.	128,953.49	75,811.32
Shamrock Oil & Gas Co., Amarillo	123,483.04	99,996.36
Saxet Oil Co., Houston	285,710.64	259,200.63
Summerfield Oil Co., Tulsa, Okla.	133.53	136.65
T		
Tidwell, H. L., trustee, Graham	834.24	880.32
Trinity Townsite Co., Dallas	607.71	689.43
Taylor-Sibley Syndicate, Dallas	2,118.32	2,387.24
Trevino Oil Corp., Laredo	24,919.53	19,469.87
Talbot & Markle, Houston	4,604.33	4,407.03
Teatsorth, L., et al, Eastland	1,549.02	1,737.99
Texas Fidelity Oil Corp., Fort Worth	6,239.43	7,236.48
Trimont Petroleum Co., Shreveport, La.	5,789.54	6,950.64
Tannehill, L. B., Albany	26,239.85	25,529.77
Triangle Oil & Gas Co., Rockdale	982.19	980.07
Tegler, F. E., San Antonio	274.99	329.87
Texas Petroleum Development Co., Cameron	4,115.17	4,279.99
Teel Production Co., Breckenridge	1,695.23	1,868.59
Texas Petroleum Co., San Antonio	34,293.13	26,975.02
Thaxton, W. H., estate, Austin	422.30	394.16
Treat, E. M., Oil & Gas Co., Pittsburgh, Pa.	1,125.69	1,223.59
Trinity Production Co., Wichita Falls	399.16	424.29
Travellers Oil Co., Amarillo	9,218.21	8,445.57
Thomas, J. A., Burkburnett	1,665.70	1,637.76
Timblin, W. E., Wichita Falls	163.51	174.93
Triangle Petroleum Co., Inc., Fort Worth	491.91	510.65
Tillery, L. J., Oil Co., Inc., Beaumont	10,847.81	11,289.65
Tripplehorn, J. W. & D. R., Fort Worth	2,538.26	2,546.07
Texas Consolidated Oil Co., San Francisco, Calif.	16,013.01	20,023.81
Texon Oil & Land Co. of Texas, Fort Worth	71,683.15	47,999.81
Tidwell, R. V., trustee, Graham	2,602.59	2,962.26
Thompson, J. E., Humble	568.00	568.00
Taylor-Link Oil Co., Houston	64,001.69	45,692.03
Ticker, Art, Graham	2,120.62	2,469.24
Traylor-Rutherford Oil Corp., Refugio	57,077.84	44,186.18
Texas Unity Oil Co., Houston	460.45	555.05
Tucker Oil Co., Wichita Falls	75,519.77	74,279.46
Thomasson, E. M., & Co., Inc., Denver, Colo.	343.49	397.97
Taylor Development Co., Taylor	5,011.42	5,207.42
Theis Oil Co., Sour Lake	2,717.07	2,785.05
Tripplehorn, D. R., Pampa	4,416.14	4,135.12
Tholl Oil Co., Beaumont	3,164.60	3,610.32
Turman Oil Co., Tulsa, Okla.	23,199.72	26,304.31
Tidal Oil Co., Tulsa, Okla.	212,963.18	165,879.97
Timms-Fogarty Oil Corp., Amarillo	347.03	197.81
Timms-Dietsch Oil Corp., Amarillo	2,543.85	2,631.60
Timms Robinson Oil Corp., Amarillo	694.21	690.54
Timms, L. W., Oil Corp., Amarillo	2,240.54	2,254.67
Thomson, F. L., San Antonio	3,557.61	4,091.22
The Texas Company, Houston	3,771,601.37	3,808,889.24
Texas Pacific Coal & Oil Co., Thurber	116,166.42	130,824.56
Texas Pacific Coal & Oil Co., Thurber	285,211.76	254,978.51
Texas Pacific Coal & Oil Co., Thurber	6,886.45	5,142.93
"Trapshooter" Reilly Oil & Royalty Co., San Antonio (9-30-30)	64,067.13	63,889.22
"Trapshooter" Reilly Oil & Royalty Co., San Antonio (6-30-30)	26,267.91	23,868.18
Tex Cal Oil Co., Brownwood	4,643.10	4,492.62
Tilton, Elvin, et al, Houston	45,266.46	35,354.00
Texas Gas Co., Houston	396.29	336.85
Towns, M. K., Luling	10,811.19	9,730.07
Thomas, J. Elmer, Fort Worth	31.8	42.42
Turman, L. C., Fort Worth (12-31-30)	153,912.76	113,569.11
Turman, L. C., Fort Worth (9-30-30)	218,444.90	206,200.24
U		
Unice & Carpenter, Houston	2,273.93	2,619.07
Underwood Drilling Co. (Erwin lease), Wichita Falls	795.03	809.20
Underwood Drilling Co. (Perkins lease), Wichita Falls	318.78	237.74
Underwood Drilling Co. (Underwood & Campbell lease), Wichita Falls	569.21	624.88
Underwood Drilling Co. (Underwood & Consolidated Ward lease), Wichita Falls	1,363.27	1,408.09
Underwood Drilling Co. (Ward A lease), Wichita Falls	2,650.23	2,812.39
United Production Corp., Houston	794,881.72	726,159.79
University lease, Section 24, San Angelo	8,320.80	5,742.62
Union Oil Co. of Nevada, Abilene (12-31-30)	460.76	327.14
Union Oil Co. of Nevada, Abilene (9-30-30)	35.23	52.85
United Oil Corp., Wichita Falls	7,485.03	6,465.78
Union Production Co., Inc., Rockdale	3,375.99	3,457.08
Union Oil & Mining Co., Tulsa, Okla.	5,714.32	5,886.25
Urban, O. J., et al, Ranger	599.10	691.22
Unity Oil Co., Beaumont	14,387.00	13,034.00
Upland Oil Co.-Cady-Conner & Crenshaw, Pampa	13,229.54	11,978.43
United Producers Co., Wichita Falls	43,689.29	45,783.31
Upham Gas Co. of Texas, The, Wichita Falls	1,307.62	1,855.77
V		
Vitek, Paul, trustee, Fort Worth	30,870.81	20,763.44
Valerio, Inc., San Antonio	453.17	530.20
Vacuum Oil Co., Houston	29,472.57	30,746.32
Virginia Oil Ass'n, Inc., Fort Worth	3,320.90	2,754.87
Vigil Oil & Gas Co., Wichita Falls	7,107.69	6,013.50
Van Wormer, Frank E., Wichita Falls	1,064.91	922.92
Van Cleave Trust, Baltimore, Md.	465.54	470.28
Venmex Oil Co. of Texas, Wichita Falls	39,779.42	44,456.47
W		
Wheelock, R. L., receiver for Central Texas Ref. Co., Corsicana	7,659.10	7,494.54
Williamson, R. C., Fort Worth (1-30-30)	3,289.60	4,695.91
Williamson, R. C., Fort Worth (9-30-30)	667.83	966.19
Wright, H. L., receiver for J. T. Stover et al, Mirando City (9-30-30)	23,815.00	20,342.75
Wright, H. L., receiver for J. T. Stover et al, Mirando City (6-30-30)	1,864.00	1,584.00
Williamson, R. C., Fort Worth (6-30-30)	444.70	643.56
West, Mrs. Bessie M., Houston	1,430.74	1,645.35
Woods & Bennett, Humble	3,907.24	3,907.24
Wood, Benton, Lesh & McCall, Nocona	3,854.10	3,815.72
Washoma Petroleum Co., Enid, Okla., (9-30-30)	30,531.99	32,772.71
Webb Oil Co., Humble	3,716.53	3,873.84
Whiteside, J. E., Brownwood	344.07	328.25
Westbrook, R. A., production account, Fort Worth	16,932.90	11,408.55
Wilder, Jack H., Rice	426.91	464.78
Woods, C. D., & C. C., Ranger	145.73	178.79
Webb, Luther, receiver, Vernon	4,104.00	4,051.82
Witcher, Annie L., guardian, Wichita Falls	3,141.79	3,576.15
Washoma Petroleum Co., Enid, Okla. (12-31-30)	7,982.71	5,968.54
Watts, C. D., Moran	574.48	443.60
Wilbarger Oil Co., Wichita Falls	1,308.96	1,217.64
Winrod Oil Co., Amarillo	1,598.66	1,595.64
Wichita Production Co., Wichita Falls	9,009.91	9,780.33
Wilson-Broach Co., The, Beaumont	11,664.67	11,776.71
Wilson Drilling Co., Wichita Falls	12,585.46	14,291.79
World Oil Co., Inc., Fort Worth	8,884.51	6,319.54
Webb, Luther, Vernon	1,093.86	1,078.01
West Production Co., Houston	24,298.40	26,837.50
Why Not Oil Co., Mexia	4,694.16	5,192.84
Weiler, J. G., et al, Cross Plains	1,221.56	1,389.57
Wilson & Swain, Woodson	1,462.33	1,535.50
Webb, J. R., Corsicana	215.39	215.39
Webb, J. R., & J. H. Bryant, Corsicana	250.27	162.67
Wilson, W. L., Electra	931.74	1,066.23
Witcher, W. C., et al, Wichita Falls	492.57	542.79
Wills Oil Co., Rockdale	1,169.43	1,185.69
Westheimer & Daube, Ardmore, Okla.	30,980.05	24,932.79
Welch, Chas., Albany	664.00	660.00
Wo-Mac Oil Co., Wichita Falls	4,875.94	5,035.35
Woody, W. C., Wichita Falls	1,825.14	2,129.96
Wright, H. L., receiver for J. T. Stover et al Mirando City (12-31-30)	23,036.07	18,071.05
Woodruff Development Co., Inc., Cleveland, Ohio	778.00	694.15
Weaver & Pois, Wichita Falls	1,741.43	1,839.24
West, J. H., Lemon Grove, Calif.	7,635.57	7,937.01
Weiler, H. J., Wichita Falls	242.05	174.27
Worth Oil Co., Wichita Falls	4,156.50	3,621.71
Wahpoo Oil Co., Rockdale	953.08	987.70
White & Duncan, Wichita Falls	5,080.59	5,383.32
Weekley Oil Corp., Fort Worth	43,851.39	36,636.39
Watchorn, Robert, Oklahoma City, Okla.	1,916.47	1,755.34
Worth Petroleum Co., Fort Worth	4,871.67	5,285.76
West Texas Petroleum Corp., San Angelo	15,234.62	9,848.75
Wolf, D. L., Olney	4,963.01	4,269.08
Williams, John H., et al, Dallas	3,876.26	4,314.74
Whitfield, B. V., Oklahoma City, Okla.	345.52	369.71
White, James H., Wichita Falls	6,917.70	6,170.09
Wheelock & Collins, Corsicana	8,301.34	9,168.92
Wallace, Dr. Chas. Wm., & wife, Wichita Falls	47,645.16	53,889.54
Warner-Quinlan Co. of Texas, Houston	187,520.42	135,984.38
Woodburn Oil Corp., Dallas	2,843.24	3,077.51
Wise & Porterfield, Graham	1,868.08	1,974.14
Wilson, Lee, estate et al, Wichita Falls	2,937.38	3,143.54
Woodley Petroleum Co., Shreveport, La.	51,827.35	59,715.28
Whitehill Oil Corp., The, Tulsa, Okla.	4,015.46	4,526.64
Woods, C. D., & C. C., Ranger	520.09	534.21
Walker, A. C., Albany	6,097.34	4,721.12
Ward Oil Corp., Ardmore, Okla.	147,692.38	32,771.56
Wills, O. C., Burkburnett	1,661.12	1,613.91
Weldon Oil Co., Saratoga	10,733.68	3,833.43
Whaley Co., Inc., Fort Worth	4,387.31	4,742.78
Wallace & Emrick, Minerva	397.42	426.51
Wallace & Davis, Minerva	521.98	519.54
Wise & Jackson, Sapulpa, Okla.	4,970.52	5,261.64
Witherspoon Oil Co., & C. L. Witherspoon, San Antonio	27,871.65	23,360.47
Waggoner, E. P., & C. F. Kolp, Electra	3,052.72	3,204.56
Wolfe, A. T., Wichita Falls	3,772.37	4,313.37
Wentz, L. H., oil division, Ponca City, Okla.	2,687.84	1,693.34
Walton, Blair & Schlaffke, Electra	4,234.38	4,542.35
West, C. K., Breckenridge	3,435.91	3,689.73
Wolfe, D. L., Olney	4,963.01	4,269.08
Wilcox, H. F., Oil & Gas Co., Tulsa, Okla.	244,420.62	245,284.28
Woods, C. D., & C. C., Ranger (9-30-30)	136.70	187.79
Wilkins, L. A., Burkburnett	5,507.11	5,727.39
Y		
Yount-Lee Oil Co., Beaumont	1,539,716.49	1,484,179.22
York Petroleum Co., Stamford	56.21	52.77
Yingling, S. F., for Southern Oil Corp. of America, Winfield, Kans.	7,482.09	3,741.05
Z		
Zadie Belle Oil Co., Fort Worth	461.24	493.53
Zenity Oil Production Co., Wichita Falls (9-30-30)	27,929.63	31,850.85

DOMESTIC EXPORTS OF PETROLEUM AND REFINED PRODUCTS

		January		Six mo. ended Dec.	
		1930	1931	1929	1930
Petroleum, crude	Bbls.	1,807,927	1,918,860	14,878,377	11,612,007
Petroleum, crude	$	2,486,189	2,228,157	22,353,171	16,656,063
Total refined petroleum	Bbls.	11,160,929	9,357,793	65,402,939	56,813,654
Total refined petroleum	$	41,974,419	25,829,822	250,631,724	196,961,410
Gasoline, naphtha and other light products	Bbls.	5,296,359	4,662,224	31,702,944	29,759,384
	$	23,131,914	12,764,610	138,880,496	112,457,388
Oils, illuminating	Bbls.	1,937,537	1,275,058	9,631,374	7,743,615
Oils, illuminating	$	7,526,233	3,439,358	40,248,292	28,245,437
Gas and fuel	Bbls.	3,020,569	2,734,587	18,793,382	14,741,198
Gas and fuel	$	2,978,037	2,581,566	19,416,214	15,497,349
Lubricating	Bbls.	892,126	676,181	5,193,664	4,500,146
Lubricating	$	8,148,525	5,966,311	50,896,936	39,904,856
Other refined petroleum	Bbls.	14,338	9,743	81,565	69,313
Other refined petroleum	$	189,710	127,977	1,189,587	856,380
Paraffin wax	Lbs.	32,452,538	22,060,479	176,759,229	157,004,000
Paraffin wax	$	1,291,433	691,874	7,072,368	5,233,808

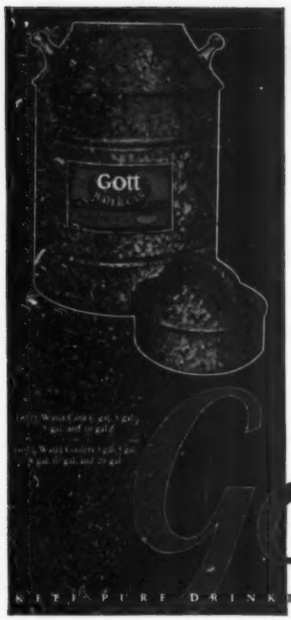
OKLAHOMA LICENSES TO BE RECOGNIZED

AUSTIN, Tex., Mar. 14.—Following protests from the governor and the attorney general of Oklahoma over recent arrests of Oklahoma citizens in Texas whose automobiles bore 1930 license plates, Attorney General James V. Allred has advised L. G. Phares, chief of the Texas highway patrol, to instruct all of his men to respect 1930 Oklahoma license plates.

The attorney general's ruling followed arrest of a number of Oklahoma citizens in the oil fields near Kilgore and Henderson. His ruling stated the time for taking out automobile licenses in Oklahoma was March 1, but time had been extended to April 1, without notice to the highway department of Texas. Governor Murray of Oklahoma said in substance in his telegram of protest that "two can play at the game," the attorney general said.

PANAMA TANKERS

During January, 78 tank ships transited the Panama Canal with an aggregate net tonnage, Panama Canal measurement of 423,069 on which tolls of $391,454.19 were paid. In point of net tonnage tanker traffic decreased 27.8 per cent compared with the tanker traffic for the corresponding month a year ago, while cargo tonnage decreased 20.5 per cent.



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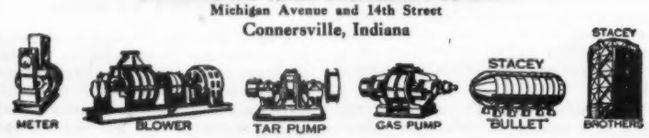

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IT NEVER DID PAY TO DECEIVE DAVE STEWART

(Continued from Page 25)

ters, then a district foreman. Le Masters, who was general superintendent of the Oklahoma Pipe Line Co. when he died last year, told me afterward that they had gone only a short distance when Dave remarked with a chuckle, 'Say, that Graham's a good man, isn't he?' "

A man who incurred Mr. Stewart's wrath and never succeeded in restoring himself in favor is recalled as "Matt." Matt worked for a while as connection foreman of the Prairie's Ramona tank farm gang. Here the company kept an old Civil War cannon designed to be used, in case of fire, to shoot 3-inch balls through the wall of a tank, thus releasing oil so that it could be salvaged. One Independence Day Matt was full of patriotism and liquor. By way of celebration he put a big charge of powder in the cannon, rammed in a wet gunny sack on top of it and set it off. There was a terrific explosion, which blew the ancient piece of artillery into fragments without injuring Matt or anybody else. Dave promptly fired Matt amid a cloud of blistering epithets and announced there would be no place on a Prairie pay roll anywhere for him after that.

Then Matt Had a Bright Idea

As the Prairie was the only large operating pipe line company in the Mid-Continent area at that time the future looked dubious for Matt. However, he assumed a fictitious name and got a job with another Prairie gang. Dave soon discovered him and Matt moved to another spot. Repeatedly after that Matt would be found working under the name of Fogarty, McCready or other alias, and it is said he managed to get about all the work he really wanted in spite of Dave's interdiction.

Mr. Stewart was made general superintendent of the Oklahoma Pipe Line Co. (Standard subsidiary) in 1909. In 1911 he became manager of all the pipe lines of the Magnolia Petroleum Co., which later was to become a subsidiary of the Standard Oil Co. of New York. When the Magnolia Pipe Line Co. was organized in 1926 Mr. Stewart was made vice president and manager, holding the same office in the parent concern, the Magnolia Petroleum Co.

When the Standard of New York sent a crew of 16 men to Shensi province, China, in 1913 to prospect for oil it picked Mr. Stewart to take charge of the expedition. The party took four strings of cable tools and two rotary rigs besides other necessary equipment. Several days had to be spent in Shanghai before the long journey northward into the interior began. It is related that one night the oil men dropped into a place to slake their thirst. Scores of Chinese sat at tables, leisurely sipping their drinks in the native fashion. The 17 Americans, instead of taking chairs at tables, ranged themselves along the bar and at the invitation of one of their number named their choice—whisky in each case. To the accompaniment of "Well, here's luck!" 17 glasses rose and tipped their contents down 17 throats. The sight caught the immediate and somewhat uneasy interest of the natives, who were not accustomed to seeing beverages of uproarious potentialities gulped down in that fashion.

"Have another," came the invitation from somebody in the group. And the operation was repeated with smoothness, precision and dispatch.

What's Coming Off Here?

Silence fell over the tables, broken in a few moments by an undertone of alarmed singsong which meant, "Say, if those Indians throw any more of that stuff into them like that there'll be riot and bloodshed around here in about a minute! Whadda they think they're drinking anyhow?"

Before the second drink had been given fair time to settle down comfortably beside the first, one of the Americans repeated that historic remark which the governor of North Carolina is reported to have made to the executive of a neighboring state. As 17 hands began pouring out the third drink there was the sound of

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chairs being shoved hastily from tables, followed by the hurried shuffling of sandled feet. Turning their heads, the astonished Americans beheld an excited drove of Chinese scurrying toward the exit like frightened rabbits, each trying to get there first. The last panic-stricken Chinaman darted through the doorway, leaving the 17 oil men in solitary and undisputed occupancy.

Mr. Stewart and his men traveled by rail from Shanghai to Mienchih, Honan province, about 1,000 miles northward. Leaving most of the drilling equipment in Mienchih, Mr. Stewart hired 1,500 coolies and 1,500 mules to carry one standard cable outfit 500 miles westward through rough, mountainous territory into Shensi province. The notorious bandit chief, White Wolf, crossed the oil men's path several times, but did not molest them. Four test wells were drilled to 2,500 feet and shows of oil were found. Turbulent conditions prevailed and the attitude of the Chinese government was not friendly, so after 10 months of prospecting the party was called back to the United States. No further effort was made to develop the oil resources of the region.

Mr. Stewart married Mrs. Nellie Chambers of Parkersburg, W. Va. In Dallas, Tex., where they reside, Mr. Stewart is a member of the Dallas Country Club and the Dallas Athletic Club. He is a Mason and a Shriner.

NEW DIVISION OFFICE FILLED BY W. W. STEIN

Following the recent purchase by the United Pipe Line Corp. from the Southern Natural Gas Corp. of the gas line extending from Jackson, Miss., to Pensacola, Fla., the former company has established a new pipe line division with head-

W. W. Stein

quarters in Jackson. W. W. Stein, formerly manager of the Laredo division of the distribution department, has been placed in charge as district superintendent and manager of the United Gas Public Service Co.

Division offices of the United Production Corp., an affiliated company, have been maintained in Jackson since last November, including land and right of way, engineering and geological departments. In addition to Mr. Stein, heads of the various departments of the United Gas system in Jackson are: J. R. Rutherford, engineering; Jackson Young, chief geologist; L. H. Carter, chief clerk, and C. H. Jackson, chief dispatcher.

The line recently purchased belonged to the Southern Natural Gas Corp. of Birmingham, Ala., with branch lines to Bogalusa, La., Canton, Laurel, Hattiesburg, Gulfport and Biloxi, Miss. Although as yet not connected with the city distribution system, the extension of the main line from Mobile, Ala., to Pensacola, Fla., was completed recently and is ready for operation.

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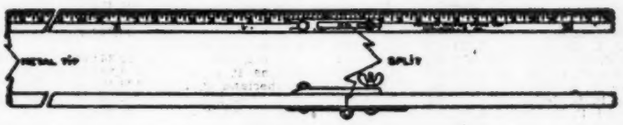

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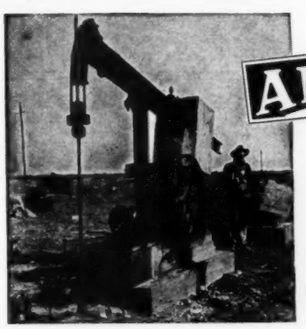

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Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS
Pipe Line Report for Month of January

Runs

	Month bbls.	Dly. av. bbls.
Prairie P. L. Co.*	889,700	28,700
Gulf P. L. Co.	1,271,476	41,015
Texas P. L. Co.	737,838	23,801
Magnolia P. L. Co.	1,716,263	55,363
Empire P. L. Co.	2,016,090	65,035
Cosden P. L. Co.	777,611	25,084
Stanolind P. L. Co.*	2,976,000	96,000
Oklahoma P. L. Co.	2,306,285	74,396
Other lines*	5,580,000	180,000
Total January	18,271,263	588,394
Total December	18,247,639	588,633
Difference	23,624	761

Shipments

Prairie P. L. Co.	2,207,392	71,206
Gulf P. L. Co.	1,302,534	42,017
Texas P. L. Co.	864,399	27,884
Magnolia P. L. Co.	1,624,584	52,405
Empire P. L. Co.	1,846,232	59,556
Cosden P. L. Co.	808,987	26,096
Stanolind P. L. Co.	2,943,576	94,954
Oklahoma P. L. Co.	2,455,605	79,213
Other lines*	5,549,000	179,000
Total January	19,602,309	632,231
Total December	17,899,960	577,419
Difference	1,702,349	54,912

Stocks

Prairie O. & G. Co.*	38,000,000
Gulf. P. L.-Gypsy Oil Co.	7,964,315
The Texas Company	3,873,693
Magnolia Petroleum Co.	5,815,317
Empire P. L. Co.	5,470,618
Mid-Continent Pet. Corp.	3,641,294
Stanolind Crude Oil Pur. Co.*	18,277,000
Oklahoma P. L. Co.	2,594,116
Carter Oil Co.	9,780,208
Other lines*	
Total January	119,400,561
Total December	119,753,742
Difference	353,181

*Estimated. Prairie and Stanolind shipments include Texas crude oil.

EASTERN PIPE LINE REPORT FOR JANUARY

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky, Illinois, Indiana and Michigan for December and January:

	Dec., 1930	Jan., 1931
Nat. Transit	110,146.31	127,013.37
S. W. Pa. P. L.	72,041.68	75,179.62
Eureka P. L.	289,000.11	292,615.52
Buckeye P. L. (Mackb'g)	325,496.03	311,885.14
Buckeye P. L. (Cleve.)	11,757.62	11,175.80
Buckeye P. L. (Lima, etc.)	82,364.67	91,601.51
Indiana P. L.	3,342.37	3,805.02
Cumberland P. L.	178,692.00	174,361.92
N. Y. Transit	28,548.26	27,836.13
Tide Water P. L.	27,349.30	25,747.93
Pure Oil	204,537.02	220,231.74
Stoll Oil Ref.	14,378.02	
Bradford Tran.	319,175.02	310,660.96
East Gulf Oil	7,156.40	
Total	1,672,984.81	1,672,114.62
Daily average	53,999.19	53,939.18

Note—Indian Refining Co. had other receipts of 293,705.56 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for December and January:

	Dec., 1930	Jan., 1931
Nat. Transit	418,614.12	431,427.59
S. W. Pa. P. L.	243,352.43	311,121.19
Eureka P. L.	268,939.44	333,443.59
Buckeye P. L. (Mackab'g)	247,581.49	257,687.49
Buckeye P. L. (Cleve.)	1,464.51	1,462.63
Buckeye P. L. (Lima, etc.)	1,062,204.74	1,121,462.88
Indiana P. L.	287,189.29	644,291.15
Cumberland P. L.	129,255.52	109,598.07
Southern P. L.	27,773.80	65,326.45
N. Y. Transit	189,599.54	174,756.42
Northern P. L.	78,349.64	230,180.55
Tide Water P. L.	359,965.20	536,454.77
Pure Oil	69,124.29	86,532.61
Indian Ref.	280,245.79	278,699.79
Bradford Tran.	273,359.08	364,290.63
Tuscarora Oil	369,139.82	489,729.45
East. Gulf Oil	5,397.60	
Total	4,413,056.40	5,436,465.31
Daily average	142,001.82	175,369.86

Gross Stocks

The gross stocks held by various pipe lines in the oil-producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky and Indiana at the close of December and January:

	Dec., 1930	Jan., 1931
Nat. Transit	796,609.10	839,235.79
S. W. Pa. P. L.	444,175.42	432,473.26
Eureka P. L.	1,500,225.43	1,548,201.04
Buckeye P. L. (Mackab'g)	643,952.78	597,544.40
Buckeye P. L. (Cleveland)	37,346.45	54,263.96
Buckeye P. L. (Lima, etc.)	4,424,779.87	4,554,991.51
Indiana P. L.	587,459.89	562,567.51
Cumberland P. L.	592,631.01	623,458.27
Southern P. L.	292,359.09	265,515.03
N. Y. Transit	140,232.95	161,624.59
Northern P. L.	515,798.08	368,986.82
Tide Water P. L.	1,049,178.91	979,269.33
Pure Oil	467,768.78	605,621.04
Indian Ref.	55,677.44	70,080.52
Tuscarora	15,325.72	14,447.96
Brad. Trans.	183,944.67	152,811.37
East. Gulf	4,695.82	
Total	11,751,952.41	11,831,092.90
Difference	99,428.51	79,140.49

Grades of Oil

The following table shows the amount of the different grades of oil held by the Eastern Pipe Lines at the close of December and January, showing gross stocks of the above fields:

	Dec., 1930	Jan., 1931
Pennsylvania	3,950,817.59	3,904,310.87
Lima	757,684.69	800,340.43
Kentucky	643,036.35	665,271.73
Mid-Continent	5,903,435.98	5,863,671.90
Illinois	40,169.01	3,659.28
Michigan	456,808.89	593,938.69
Total	11,751,952.41	11,831,092.90

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1928	1929	1930	1931
Jan.	52,904	51,749	75,907	53,939
Feb.	57,002	51,833	79,256	.....
Mar.	57,435	54,353	76,658	.....
April	56,812	53,444	84,536	.....
May	62,067	59,902	80,548	.....
June	58,230	58,833	75,430	.....
July	57,144	66,087	68,921	.....
Aug.	57,745	56,087	54,291	.....
Sept.	53,487	67,315	56,595	.....
Oct.	58,100	76,093	58,179	.....
Nov.	53,865	74,831	52,333	.....
Dec.	52,025	74,561	53,999	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1928	1929	1930	1931
Jan.	146,465	165,721	217,623	176,369
Feb.	167,368	159,387	224,355	.....
Mar.	158,883	161,474	228,846	.....
April	172,935	169,737	241,845	.....
May	180,559	184,281	248,383	.....
June	188,024	185,404	234,601	.....
July	189,470	194,762	207,094	.....
Aug.	192,853	194,946	205,506	.....
Sept.	194,138	201,214	193,999	.....
Oct.	176,000	191,367	157,675	.....
Nov.	176,893	202,743	146,638	.....
Dec.	173,572	186,257	143,001	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1929	1930	1931
Jan.	7,596,564	12,220,045	11,831,093
Feb.	8,738,835	12,991,561	.....
Mar.	9,002,058	13,247,217	.....
April	8,978,172	13,233,961	.....
May	8,903,560	13,052,952	.....
June	8,921,275	13,396,855	.....
July	9,211,595	13,248,543	.....
Aug.	9,440,643	13,047,051	.....
Sept.	9,443,067	12,813,018	.....
Oct.	9,441,101	12,437,555	.....
Nov.	9,868,538	11,851,380	.....
Dec.	11,253,953	11,751,953	.....

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, February 1	1,942,817.13
Runs from wells	442,681.06
Other receipts	157,854.19
Regular deliveries	606,697.37
Other deliveries	200,580.64

The amount of Illinois oil run by the Tide Water Pipe Line Co. in January was 25,747.93 bbls. Deliveries were 62,875.82 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1931—	Runs	Deliveries
Jan.	468,429.04	669,573.19
1929—		
Feb.	517,320.17	503,387.79
Mar.	728,319.67	586,049.49
April	515,374.27	654,297.96
May	608,981.60	673,812.83
June	568,454.70	818,845.97
July	611,106.79	828,159.44
Aug.	625,351.99	746,425.06
Sept.	582,457.66	669,947.[illegible]
Oct.	622,302.83	558,558.68
Nov.	565,108.75	427,064.63
1930—		
Jan.	543,387.95	498,293.93
Feb.	548,416.33	414,536.59
Mar.	631,944.49	469,119.53
April	530,074.32	509,304.69
May	605,147.37	504,069.84
June	572,662.57	468,558.81
July	604,529.54	388,454.47
Aug.	594,643.12	375,742.43
Sept.	457,001.11	371,691.83
Oct.	478,442.12	320,688.78
Nov.	422,794.68	355,402.12
Dec.	556,418.78	363,719.55

Tide Water Pipe Co., Ltd., also delivered in January 270,086.49 bbls. Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA CRUDE AND REFINED OIL AT ATLANTIC AND GULF PORTS

Average barrels per day in 1930-31—	Atlantic Ports: Baltimore	Boston	New York	Philadelphia	Others	Total	Gulf Coast Ports: Galveston	New Orleans, Baton Rouge	Port Arthur, Sabine Pass	Tampa	Total	Total all ports
February	7,678	.....	24,714	14,321	5,000	51,714	.....	.....	.....	.....	2,607	54,321
March	10,548	3,065	28,871	8,774	22,484	73,742	.....	.....	.....	.....	805	74,548
April	7,767	.....	14,369	11,600	7,433	41,167	.....	.....	.....	.....	7,600	48,767
May	5,194	8,451	28,161	9,484	2,774	54,064	.....	.....	.....	.....	774	54,838
June	8,300	.....	33,933	20,767	3,333	66,333	.....	.....	.....	.....	2,400	67,733
July	17,355	7,774	42,419	23,839	6,452	98,839	.....	.....	.....	.....	4,645	103,484
August	7,418	3,742	38,968	21,226	5,258	81,613	.....	.....	.....	.....	97	81,710
September	6,300	6,400	25,600	13,400	9,567	61,267	.....	.....	.....	.....	2,433	63,700
October	2,516	3,065	27,258	16,419	4,903	54,161	.....	.....	.....	.....	5,355	59,516
November	3,367	6,233	23,800	17,733	4,600	70,733	.....	.....	.....	.....	4,800	75,533
December	5,516	4,323	20,645	9,673	3,580	53,742	.....	.....	.....	.....	4,645	58,387
January	8,387	6,613	21,968	14,678	11,096	62,742	.....	.....	.....	.....	6,129	68,871

AVERAGE DAILY IMPORTS OF CRUDE AND REFINED OIL AT PRINCIPAL UNITED STATES PORTS

Average barrels per day in 1930-31—	Atlantic Ports: Baltimore	Boston	New York	Philadelphia	Others	Total	Gulf Coast Ports: Galveston	New Orleans, Baton Rouge	Port Arthur, Sabine Pass	Tampa	Total	Total all ports
February	24,500	14,714	147,357	36,036	39,786	262,933	2,821	11,072	3,500	1,964	19,357	281,750
March	28,355	4,839	151,806	36,645	34,903	255,548	4,223	11,645	839	2,419	19,226	274,774
April	31,400	8,933	122,500	40,433	19,434	223,700	.....	7,400	2,433	4,167	14,000	237,700
May	34,129	9,322	174,194	39,291	28,226	275,161	8,194	11,548	2,935	1,323	24,000	299,161
June	51,533	15,667	121,067	45,033	25,033	258,333	4,413	17,267	3,167	1,333	25,300	283,633
July	42,097	9,548	154,968	37,935	36,032	280,580	5,678	9,161	2,097	2,387	19,323	299,903
August	39,032	4,484	145,613	33,355	25,097	247,581	8,419	9,323	3,548	3,000	29,290	276,871
September	38,867	8,533	150,933	34,500	25,567	258,400	6,433	12,214	.....	3,800	32,467	290,867
October	19,839	11,742	146,194	35,355	26,967	240,097	6,065	7,967	2,774	2,545	18,451	258,548
November	38,633	35,900	124,633	36,467	24,667	261,300	2,467	7,366	.....	1,767	11,600	272,900
December	31,419	14,033	122,774	32,839	23,774	224,839	6,290	10,613	2,097	390	19,290	244,129
January	17,613	13,519	154,235	32,902	30,512	248,871	2,033	11,677	2,097	3,097	18,903	267,774

GROSS PRODUCTION OF CRUDE OIL IN THE UNITED STATES FOR 12 MONTHS (Revised)

(In Barrels of 42 Gallons)

1930—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
January:	Month	21,983,242	20,802,984	25,284,352	3,272,197	1,817,685	1,780,751	2,161,090	4,113,000	81,206,301
	Daily average	709,137	671,064	815,624	105,587	58,635	57,444	69,390	132,678	2,619,558
February:	Month	20,885,660	17,977,624	23,314,637	2,965,704	1,608,376	1,728,250	3,027,984	3,962,000	74,481,235
	Daily average	745,916	642,058	832,669	105,918	57,442	62,080	72,428	141,536	2,660,044
March:	Month	19,699,979	19,115,406	25,503,082	3,504,395	1,817,871	1,942,938	2,337,028	4,223,000	78,143,699
	Daily average	635,483	616,626	823,679	113,045	58,641	62,675	75,388	136,161	2,520,764
April:	Month	18,768,743	19,541,310	24,795,763	3,734,253	1,724,460	1,909,552	2,334,810	4,257,000	77,069,891
	Daily average	625,625	651,377	826,659	124,475	57,482	63,652	77,827	141,900	2,568,996
May:	Month	19,044,444	20,587,503	26,215,488	3,978,385	1,659,895	1,907,482	2,565,219	4,414,000	80,376,776
	Daily average	614,337	664,113	845,786	128,335	53,545	61,548	82,749	142,387	2,592,799
June:	Month	18,020,795	19,764,700	25,643,705	3,765,060	1,704,060	1,925,621	2,519,190	4,288,000	77,621,131
	Daily average	600,693	658,490	854,790	125,502	56,802	64,187	83,973	142,933	2,587,371
July:	Month	18,802,024	18,032,514	25,973,521	3,541,409	1,713,680	2,079,769	3,275,894	3,830,000	77,248,811
	Daily average	606,517	581,694	837,856	114,239	55,280	67,089	105,674	123,548	2,491,897
August:	Month	18,770,466	17,162,034	25,069,598	3,491,520	1,700,102	2,151,130	3,193,341	3,417,000	74,955,191
	Daily average	605,499	553,614	808,696	112,630	54,842	69,391	103,011	110,226	2,417,989
September:	Month	17,984,306	16,509,120	23,111,822	3,405,510	1,583,280	2,008,060	3,239,010	3,396,000	71,237,108
	Daily average	599,477	550,304	770,394	113,517	52,776	66,935	107,967	113,200	2,374,570
October:	Month	18,244,053	16,632,523	23,626,553	3,571,913	1,636,552	2,142,885	3,325,550	3,627,000	72,707,029
	Daily average	588,518	536,533	762,147	115,223	52,792	69,125	104,050	117,000	2,345,388
November:	Month	18,109,459	14,941,770	22,035,222	3,459,330	1,557,870	2,136,948	3,957,100	3,222,000	68,419,699
	Daily average	603,648	498,059	734,507	115,311	51,929	71,231	98,570	107,400	2,280,656
December:	Month	17,786,728	15,057,102	21,810,359	3,432,661	1,590,951	2,157,534	3,118,663	3,328,000	68,281,999
	Daily average	573,765	485,713	703,560	110,731	51,321	69,598	100,603	107,355	2,202,645
	Total 12 months	228,099,899	216,114,591	292,292,102	42,123,347	20,114,782	23,881,270	32,944,879	46,078,000	901,748,870
	Daily average	624,931	592,095	801,074	115,406	55,109	65,428	90,260	126,241	2,470,546